WOMEN'S WORK AND THE HOUSEHOLD ECONOMY: POVERTY, POLICY AND FEMALE LABOR SUPPLY IN BRITAIN, 1897-1931

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Abstract:

The great increase in married women's labor force participation rates was one of the most notable trends of the twentieth century, and yet relatively little is known about how women's labor supply behavior related to the household context prior to the Second World War. My dissertation makes use of the detailed information on weekly hours of work and wages contained in the *New Survey of London Life and Labour* (1929-31), as well as newly-compiled data on female home workers from the 1897 and 1908 *Home Industries of Women in London* reports published by the Women's Industrial Council, to provide the first estimation of both the participation and the hours-of-work decisions for female workers prior to the Second World War. The most striking result is the finding that, among female workers in both major data sources, the labor supply curve was negatively sloped -- women worked longer hours at lower wages. I also find that, in many households, female workers played an important role in keeping household income above the minimum threshold, and that women from poor households were significantly more likely to be in the labor force, worked longer hours, and were more responsive to household earnings and benefit income. These results are consistent with a theoretical framework in which female household members act primarily as secondary workers who enter the labor force to make up for shortfalls in household income. They are also consistent with empirical studies of labor supply among the working poor in developing countries, in which there has long

been evidence of a negative relationship between wages and hours at low wage levels. The final chapter examines the potential impact of the Trade Boards Act of 1909, which set minimum wages for female workers in select trades, on women's wage rates and income contributions to poor households. The main finding is that, among home workers in the clothing and box making trades, the Trade Boards Act would have increased the wages of the women who were affected by it enough to have been effective in reducing household poverty rates.

BIOGRAPHICAL SKETCH

Jessica S. Bean grew up in Newton, MA and is a graduate of Newton South High School and Middlebury College (BA). After completing an undergraduate major in history and minor in economics at Middlebury, Bean went on to complete the M.Phil. degree in Economic and Social History at Merton College, University of Oxford. She then returned to the US to undertake a doctoral degree in economics at Cornell University, and was awarded an M.A. in economics in 2008 and the Ph.D. in 2012.

For my parents, Bruce and Claire Bean,
for their unending support and encouragement
And for George Boyer,
for his unending patience

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All errors are, of course, entirely my own.

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INTRODUCTION

The great increase in married women's labor force participation rates was one of the most notable trends of the twentieth century, and yet relatively little is known about how women's labor supply behavior related to the household context prior to the Second World War. What motivated female workers, and especially married women and widows, to enter the labor force in a time when female labor force participation rates were, for some women, at historic lows? To what extent was the entry of female workers to the labor market dictated by household need? And if female work was largely dictated by household need, how did that affect the labor supply behavior of women in the labor force? How important a source of household income was women's work? How effective was women's work as a poverty alleviation strategy?

Historical studies of female labor force participation have, indeed, tended to assume that women were mainly driven into the labor force by insufficient household income. They have typically found positive but small and often insignificant own-wage effects and large negative effects of non-labor income among female workers, and have concluded that, in the past, women were more responsive to household need than to their own wage levels (Goldin 1990; Hatton and Bailey 1988; Horrell and Humphries 1995). None of these studies have, however, had access to a measure of the hourly wage or of hours of work. Instead, they have typically related the labor force participation of individual women to their own weekly or annual earnings and those of other household members (Hatton and Bailey 1988; Horrell and Humphries 1995), or have related average female labor force participation rates to the average wage across cities in the U.S. (studies summarized by Goldin 1990, Table 5.2, p. 132). One major contribution of this dissertation is the use of the detailed information on weekly hours of work and wages contained

in the *New Survey of London Life and Labour* (1929-31) to provide the first estimation of both the participation and the hours-of-work decisions for female workers prior to the Second World War. Using the direct measure of household poverty provided in the survey, I am also able to relate both labor force participation and hours of work to a direct measure of insufficient household income.

The first chapter examines the labor supply decisions of women in interwar London using the approximately 28,000 households contained in the *New Survey*, which is almost certainly the best and most complete large source of micro-data on households available before WWII. My main finding is that, when the hours decision is examined, female labor supply around 1930 looks quite different from the post-war period. Most striking is that the labor supply curve was negatively sloped -- women worked longer hours at lower wages. I also find that, in many households, female workers played an important role in keeping household income above the minimum threshold, and that women from poor households were significantly more likely to be in the labor force, worked longer hours, and were more responsive to household earnings and benefit income. These results are consistent with a theoretical framework in which female household members act primarily as secondary workers who enter the labor force to make up for shortfalls in household income. They are also consistent with empirical studies of labor supply among the working poor in developing countries, in which there has long been evidence of a negative relationship between wages and hours at low wage levels. Finally, I explore the ways in which the labor supply behavior of married women, female household heads and young single women related to their differing roles within the household economy. Most striking among these results is the extent to which married women appear to have entered the labor force in response

to the unemployment of their husbands following the onset of the depression in 1930.

The other major contribution is the coding of data on female home workers and their households contained in the 1897 and 1908 *Home Industries of Women in London* reports published by the Women's Industrial Council. Newly compiled data from the reports detail the occupations, average weekly earnings and hours, marital status, and household size, composition and total income of approximately 850 female home workers, offering a unique, and as yet unused, opportunity to explore labor supply behavior among the lowest-paid workers in the early twentieth century. In addition to providing detailed information about the nature of home work and the conditions of the workers, these surveys also contain data that can be used to calculate an hourly wage, which can then be related to information about daily and weekly hours of work, and, in come cases, prior training and the reasons for working. Although these surveys have been referenced in historical accounts of low wage work and workers in the late nineteenth and twentieth centuries (Blackburn 2007; Bythell 1978; Schmiechen 1984), they have never been systematically analyzed as a quantitative data set.

Home workers are a population, and industrial work carried out within the home is a phase of women's work, about which we know very little. The labor force participation rate of married women around the turn of the century was very low, and home work would likely have been an appealing option for those who did need to earn some extra income for the household, while also carrying out their normal domestic work and child care duties. Analysis of the data reveals that the female home workers who were surveyed were drawn overwhelmingly from poor households. Most were married or widowed, and the majority of married workers reported that their husbands were out of work, sick, disabled, or in casual or irregular work. Weekly

wages and hours of work varied considerably by industry, but averaged about 7-9s. and 40-45 hours per week, with many workers reporting the desire for more work. The correlation between hours of work (daily and weekly) and hourly wages was negative and significant, suggesting that those who earned the lowest hourly wages needed to work longer hours in order to make a living. Women forced into paid work by low household income, sudden job loss or death or injury of main wage earner might already be less skilled and less experienced, or they might be less able to seek or hold out for higher paid work. The reports contain limited information about prior training and human capital accumulation, and I find evidence that wages were positively related to previous formal training in the form of an apprenticeship. I also find that the wives and daughters of men who were out of the labor force due to unemployment or illness tended to work longer hours at lower wages, and that having a household member who was sick, disabled or out of work exerted downward pressure on a female worker's wage rate.

Home workers were also surprisingly central to the discourse of political reformers around the turn of the twentieth century. Poverty among the working classes was a major concern of politicians and reformers in late-nineteenth and early-twentieth century Britain, and Charles Booth's pioneering survey of London in the 1880s drew particular attention to the problem of "sweated" labor in London's East End. Concern over the issue led to the formation of the 1888 House of Lords Select Committee on the Sweating System which, after encountering great difficulty in even defining the term, determined that sweating had three main characteristics: "1. a rate of wages inadequate to the necessities of the worker or disproportionate to the work done; 2. excessive hours of labour; 3. an insanitary state of the houses in which work is carried on."[1]

[1] Fifth and Final Report of the House of Lords Select Committee on the Sweating System (PP 1890 XVII, xlii).

Sweated labor was immediately, and overwhelmingly, associated with home work and with women's work, though by no means was all home work sweated work or all sweated work undertaken by women or in the home. The attention that social surveys like Booth's drew to the problem of working-class poverty, as well as concern about sweated labor and particularly the impact of sweated labor on women and children, were instrumental in the passage of the Liberal Welfare Reforms between 1906 and 1914.

The Liberal Welfare Reforms established free meals, school medical inspections and medical treatment for needy children, old age pensions, compulsory systems of health and unemployment insurance and, most notably with regard to female workers, the 1909 Trade Boards Act established boards to set minimum wages in four industries considered to be centers of low-wage, "sweated" labor. The four trades singled out -- tailoring, box making, shirt making and chain making -- predominantly employed women, and, especially in tailoring, box making and shirt making, a large number of those were home workers. The third chapter makes use of the data on female home workers in those industries provided by the 1908 *Home Industries of Women in London* report, along with another survey of women in the clothing trades, to examine the effects of the 1909 Trade Boards Act on women's wage rates and income contributions to poor households. The increase in wage rates would have affected not only single women working to support themselves, but also a large number of widows supporting children and the wives and daughters of low-skilled male workers working to supplement family income. Thus the increased contributions to household income that the Trade Boards allowed many women to make could have had a significant role in alleviating poverty among working-class families

which depended on an insufficient or irregular male wage as well as among those which depended entirely on female wages.

For this chapter, we compiled a data set of just over 300 women in the tailoring, box-making and shirt-making trades from a 1908 survey of women in the clothing trades published by Adele Meyer and Clementina Black in *Makers of Our Clothes* (1909) and from the 1908 *Home Industries of Women in London*. Our main finding is that the Trade Boards Act would have increased the wages of the women who were affected by it enough to have been effective in reducing household poverty rates. Overall, including those women whose hourly wages were already above the minimum rates, the Trade Boards would have increased average weekly income of women in the sample by about 3.6s., from an average of 7.6s. to 11.2s., in the *HIWL* data and by about 2s. in the *Makers* data, from an average of 11.6s. to 13.5s. Overall, the poverty rate among these households would have been reduced by over 20 percentage points, from 54.5% to 33%. Enough households with a female home worker engaged in box making or clothing work were primarily dependent on those earnings, however low, that even a modest increase in the hourly wage would have made a significant difference to total household income. One female worker in a household on the borderline could easily have made the difference between Mr. Micawber's oft-cited definitions of happiness and misery in Charles Dickens' *David Copperfield*: "Annual income twenty pounds, annual expenditure nineteen pounds nineteen and six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds ought and six, result misery" (Chapter 12).

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CHAPTER 1

POVERTY AND FEMALE LABOR SUPPLY IN INTERWAR LONDON

Abstract

Most prior work on historical female labor supply has been confined to looking at the participation decision. This paper uses the detailed information on weekly hours of work and wages contained in the *New Survey of London Life and Labour* (1929-31) to provide the first estimation of both the participation and the hours-of-work decisions for female workers prior to the Second World War. My main finding is that, in general, the labor supply curve was negatively sloped -- women worked longer hours at lower wages. I also find that women from poor households were significantly more likely to be in the labor force, worked longer hours, and were more responsive to household earnings and benefit income. These results are consistent with a theoretical framework in which female household members act primarily as secondary workers who enter the labor force to make up for shortfalls in household income. They are also consistent with empirical studies of labor supply among the working poor in developing countries, in which there has long been evidence of a negative relationship between wages and hours at low wage levels. Finally, I explore the ways in which the labor supply behavior of married women, female household heads and young single women related to their differing roles within the household economy. Most striking among these results is the extent to which married women appear to have entered the labor force in response to the unemployment of their husbands following the onset of the depression in 1930.

I. Introduction

The great increase in married women's labor force participation rates was one of the most notable trends of the twentieth century, and yet relatively little is known about how women's labor supply behavior related to the household context prior to the Second World War. Claudia Goldin's work on the U.S. has cited the 1920s as a key turning point in the declining employment of married women, and though much less is known about the progress of women's work in Britain, the 1920s appear to have marked a turning point in married women's labor force participation there as well.[2] Table 1.1 presents a comparison of female labor force participation rates across the twentieth century in the U.S. and Britain. Though female labor force

Table 1.1: Female Labor Force Participation Rates in the US and Britain, 1891-1981

Year	1890/1	1900/1	1911	1920/1	1930/1	1940	1950/1	1960/1	1970/1	1980/1
US[a]										
Total	18.9	20.6		23.7	24.8	25.8	29.5	35.1	41.6	51.1
Married	4.6	5.6		9.0	11.7	13.8	21.6	30.6	39.5	50.1
Single	40.5	43.5		46.4	50.5	45.5	50.6	47.5	51.0	61.5
Britain[b]										
Total			32.3	32.3	34.2		34.7	37.4	43.6	45.5
Married			9.6	8.7	10.0		21.7	29.7	42.9	47.2
Single				53.8	60.2		55.0	50.6	44.7	42.9
Britain[c]										
Total	33.5	33.9	32.5	30.6	31.6		36.3	41.0	51.5	57.7
Married		13.0	10.5	9.4	10.9		23.2	31.6	45.9	54.0
Single		65.6	66.4	65.2	66.7		70.0	73.3	72.7	68.9

[a]Figures for the US refer to all women over age 15 (over age 16 in 1970 and 1980). Source: Goldin (1990, 17)
[b]These figures for Britain refer to all women over: age 10 in 1911, age 12 in 1921, age 14 in 1931, age 15 in 1951-71 and age 16 in 1981. Source: Hatton (1986, 3-5).
[c]These figures for Britain refer to women ages 20-64. Source: Joshi et al. (1985, 151).

[2] Goldin (1990, 12); Horrell and Humphries (1995) found relatively high rates of labor force participation among working-class married women in Britain in the first half of the nineteenth century, and attribute its decline in the second half primarily to a decline in the demand for their labor.

participation rates remained relatively low during the interwar period, it may have been the case that many women who did work were driven to do so by household poverty and that women's work, or its absence, made a critical difference in the poverty status of some households.

Historical studies of female labor force participation have, indeed, tended to assume that women were mainly driven into the labor force by insufficient household income. They have typically found positive but small and often insignificant own-wage effects and large negative effects of non-labor income among female workers, and have concluded that, in the past, women were more responsive to household need than to their own wage levels (Goldin 1990; Hatton and Bailey 1988 and 1993; Roberts 1988). But the explicit link between poverty -- insufficient household income -- and female labor supply has seldom been explored, and no previous study has been able to investigate both the participation decision and the relationship between wages and hours among female workers in a historical context. This paper uses a large survey of working class households in interwar London to address two related and largely unaddressed questions: What did the labor supply function look like for working women in the early twentieth century? And what was the effect of household poverty on the participation decision, hours of work decision, and various other parameters of the labor supply function among female workers in interwar London?

Poverty among the working classes was a major concern of politicians and reformers in early twentieth century Britain, and a number of household surveys were undertaken in various urban centers during the Edwardian and interwar periods. The *New Survey of London Life and Labour* (NSLLL) was conducted by researchers at the London School of Economics between 1929 and 1931 and was an exceptionally large and thorough household survey. It is also the only

one from the period that survives in its entirety and has been computerized and coded. Because it was undertaken with the explicit aim of measuring poverty among the working class, it is an especially good source for addressing questions about the interactions between poverty and female labor supply. The labor market in interwar Britain was characterized by relatively high unemployment rates, an expanding social welfare system and significant structural change that was rapidly changing the employment opportunities available to both male and female workers. Female workers were still largely concentrated in low-wage, low-skill occupations in the domestic service, cleaning, manufacturing and clothing industries, but emerging clerical, professional, retail and skilled manufacturing jobs were beginning to offer white-collar employment and higher wages. These changes make interwar London an interesting transitional period at which to examine female labor supply.

Most prior work on historical female labor supply has been confined to looking at the participation decision, often using quite limited data. The NSLLL contains data on weekly hours of work and wages, and thus the major contribution of this paper is that it provides the first estimation of the hours-of-work decision among working women in Britain prior to the Second World War.[3] In empirical studies of labor supply among the working poor in developing countries, there has long been evidence of a negative labor supply elasticity at low wage levels -- workers may need to work longer hours at lower wages in order to meet a minimum standard of income for the household.[4] Recent work has suggested that this negative relationship between hours and wages might hold more generally among workers in low-wage labor markets,

[3] Hatton and Bailey (1988) used an earlier, 5% sample of the NSLLL to estimate a female labor force participation equation; see below, fn 5 and fn 10 for further information about their findings.

[4] Dessing (2002) and Sharif (2003) both provide extensive overviews of this literature, while Pencavel (1986) and Killingsworth and Heckman (1986) cite instances of similar findings among both male and female workers in modern Western economies.

constituting the bottom portion of a labor supply curve that turns positive at higher wage levels.[5] I find that the relationship between wages and hours was negative among this sample of working-class females in interwar London. The finding is consistent with a model in which female household members acted as secondary, target earners -- they appear to have increased their work hours at lower wage rates, and to have reduced their work hours at higher wage rates in order to spend more time in home production. The labor supply behavior of women at this time appears to have had more in common with secondary workers in the developing world than with female workers in today's modern economies. The finding is also consistent with the only other historical study I am aware of which has been able to relate wages to hours, Costa (2000a), which finds a negative relationship between the hourly wage and daily hours of work among both male and female workers in the U.S. in the 1890s.

I also present new and expanded evidence that women from poor households were more likely to be in the the labor force and worked longer hours than women from non-poor households.[6] It appears that female workers were responsive to insufficient household income, and that necessity drove poor women into low-wage work that they were quick to abandon once household income or social welfare benefits increased enough that they were able to leave the labor force. Taken together, these new findings suggest that rising own wages were not merely slow to draw women into the labor force in the early twentieth century, but that they might

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[5] Prasch (2000), Dessing (2002) and Sharif (2003) use different methodologies to derive similar curved labor supply functions.

[6] Hatton and Bailey (1988, 175-7) did include a variable indicating whether or not household income fell below the NSLLL minimum standard. They found limited evidence that women from households that would otherwise have been poor were more likely to be in the labor force, concentrated among female household heads. In this paper, I am able to extend the analysis to the whole NSLLL sample, but I am deeply indebted to their earlier work and kindness in sharing the full data set.

actually have first reduced the hours of labor supplied by marginal workers in low-wage work, before eventually drawing more highly-skilled women into higher-wage work.

The results for both labor force participation and hours of work also highlight the degree to which women's labor force participation decisions were made relative to the household context. In the interwar period, the unemployment, advanced age, or absence of the male household head were the primary factors contributing to household poverty, and interwar welfare reforms had extended the coverage of unemployment insurance and established widows, orphans' and old age pensions in order to address these issues.[7] I find that married women acted as added workers when their husbands were out of work -- and that this effect was especially strong after the depression greatly increased male unemployment rates in 1930. Female household heads, who were mainly widows and older spinsters, were especially responsive to poverty in their labor force participation decisions and to benefit income in both labor force participation and hours of work. Single women (who were, for the most part, young and still living with their parents) were less responsive to these factors, but still were more likely to be working if household income was low.

Section II presents a theoretical framework for considering female labor supply in this time period and an overview of the relevant literature. Section III further describes the NSLLL. Section IV presents an empirical framework and then the results of the empirical estimations of female hours of work and labor force participation functions. Section V concludes.

[7] Boyer (2004, 297-312) notes that the numbers of households receiving poor relief also rose in the 1920s as unemployment increased.

II. Female Labor Supply: Theoretical Framework and Historical Background

In the standard labor supply model, households maximize utility, a function of consumption and leisure, subject to a budget constraint and a time constraint. Consumption is constrained by income, typically composed of the labor market earnings of household members plus any other sources of income. Following Mincer (1962), the relevant time choices of married women are among market work, home production and leisure. Other sources of household income are assumed to have a positive effect on the demand for leisure, and thus a negative effect on both labor force participation and hours of work.[8] The female worker's market wage rate affects her allocation of hours among leisure, the home and the market. An increase in the wage increases the price (opportunity cost in terms of foregone wages) of time spent in home production or leisure, so to the degree that home production can be substituted by wage goods, this substitution effect will lead to an increase in labor supplied to the market, on both the participation and hours margins. On the hours margin, an increase in the wage also generates an increase in income that might lead to a reduction in labor supply. Thus, in general, the labor force participation of married women is thought to be positively related to their own wage offers, but the effect of a higher wage on hours of work is theoretically ambiguous, and depends on whether the income or substitution effect dominates.[9]

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[8] Studies of household labor supply in more recent times often assume that the labor supply decisions of husbands and wives are jointly determined, so that a wife's labor supply decision would affect that of her husband and would thus be endogenous to his earnings. This is certainly a concern, but most historical studies and earlier studies of British women's labor supply assume that wives and other secondary earners took the labor supply of the male household head as given (see Goldin 1990 and Greenhalgh 1980). This seems like a reasonable assumption for interwar Britain, and evidence will be presented below that most female workers appear to have acted as secondary workers.

[9] The overall effect of the wage on hours is often expressed as the uncompensated wage elasticity, which can be decomposed into its substitution effect -- the compensated wage elasticity -- and its income effect. See Goldin (1990, 132) for examples.

Modern studies of married women's labor supply have tended to find that, in general, women's labor force participation and hours decisions are both positively related to their own wages and negatively related to the wage or earnings of the spouse and non-wage income.[10] Historical studies of labor force participation, however, have generally found small and insignificant own-wage elasticities and negative household income effects that are substantially larger than those found for later time periods.[11] The interpretation has been that married women in the past were much more responsive to household income levels than to their own wage rates. Both Goldin (1990, 132-5) and Roberts (1988, 72-3) stress that, when female workers were predominantly employed in undesirable jobs in manufacturing and service, a wife's presence in the labor force was a signal that her husband did not earn enough to support the family. This stigma, along with standards of housekeeping that attached a high value to married women's household production, meant that women were typically pushed into the labor force by the low or irregular earnings of their husbands.

Historical studies have typically lacked data about hours of work, so we do not know much about the relationship between wages and hours among those women who were in the labor force. In modern studies of female labor supply, the substitution effect tends to dominate the income effect, and uncompensated wage elasticities tend to be positive. Standard labor supply theory does allow for the supply curve to bend backwards (i.e. for the income effect to dominate), but it is generally assumed that this would occur at higher, rather than lower, wage

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[10] See, for example, the survey provided in Heckman and Killingsworth (1986) and the more recent work by Blau and Kahn (2007).

[11] Goldin (1990, 132) surveys wage and income elasticities derived from cross-city studies which relate city participation rates to average wage levels and demographic characteristics. Hatton and and Bailey (1988, 176-7) use an early sample of 1356 households from the NSLLL, about 5% of the full sample, and find own-wage coefficients that are positive for household heads and other females and negative for married women, but poorly determined in all cases.

rates and is rarely observed among female workers (Barzel and MacDonald 1973; Heckman and Killingsworth 1986). In many studies of developing countries, however, the relationship between hours and wages has been found to be negative, especially at low wage rates and among poor secondary workers.[12] While older studies explained this finding by assuming that labor supply curves bent backwards at very low wage rates in underdeveloped agricultural societies, recent models (derived in different ways by Dessing 2002; Prasch 2000; and Sharif 2003) have suggested that this observed negative relationship constitutes a "forward-falling" segment of the labor supply curve, along which poor workers are induced to work longer hours as the wage rate falls in order to keep household income constant at some minimum level.

Dessing's (2002) model of household labor supply generates a negative labor supply curve for secondary workers relatively simply by adding a subsistence (or target income) constraint to the standard budget constraint. Once household income falls below some crucial minimum level, secondary workers are forced to enter the labor market, and if their wage rate falls, they must work longer hours in order to keep income constant at that lower bound. The implication for the labor force participation decisions of secondary workers is that they are primarily driven by household income level rather than their own wage rates, a prediction that is consistent with the historical findings. Workers driven into the labor market by household need may enter unpleasant work at relatively low wage rates, and, particularly in the case of married women, they are also likely to have continued responsibilities for household work. Just as the household's need for extra earnings would cause a secondary worker to increase hours of work as the wage falls, the household's need for domestic production could provide a strong incentive

[12] See Dessing (2002) and Sharif (2003) for thorough overviews of this literature.

for that worker to reduce hours of work once basic needs have been met (Dessing 2002, 444). Together, these generate a predicted negative wage elasticity for secondary workers who are working towards some target income level, and particularly for female workers who must combine market work with home production.

What would we have to believe about female workers in interwar London in order to expect, or at least be able to explain, a negative relationship between their hours and wages in this period? The two most important points would be that they acted primarily as secondary workers who worked in order to meet some target income for the household and that they did so in spite of high demands on their time spent in home production. While Dessing (2002) introduces the target income as a subsistence constraint, it is not necessary to believe that the household would fall into starvation without the earnings of a secondary worker. Every household's conception of a minimum desired income might be different -- what is most important is to believe that the household would be unlikely to send a given secondary worker into the labor force if not for some perceived deficiency in household income.

This is easiest to believe in the case of married women. It is entirely consistent with previous research on married women's labor force participation in the late nineteenth and early twentieth centuries in the U.S. and the U.K. (Goldin 1990; Roberts 1988; Hatton and Bailey 1988). It is also evident in anecdotal evidence from the interwar household surveys, notably in Ford's (1934) survey of Southampton and in the NSLLL itself. Ford gives several examples of married women who worked because their husbands were too old or unemployed, or to supplement the earnings of unskilled laborers whose earnings did not fall below the poverty line but were not far above it. He concludes that in most cases, "the activity of the married women

was a reasonable and often successful endeavor to make up the family income to an adequate amount" (Ford, 140). Llewellyn Smith's (1932) discussions of married women working in the NSLLL volumes paint a similar picture. Female home workers, though fewer in number than earlier in the century, were still among the lowest paid workers and were "mainly married women desiring to supplement the family income" (Vol II, 26). However, it was only sometimes, in the case of a husband who was "out of work or invalided or otherwise incapable of providing support" that households were observed to be entirely dependent on married women's earnings (Vol II, 309). Llewellyn Smith presents the typical home worker in the clothing trades as "a middle-aged married woman whose husband is an unskilled labourer earning from £2 to £3 a week, and who occupies herself not to provide a bare subsistence for a family, but because she wishes that a rather higher standard of living may be possible in the household than would otherwise be the case" (Vol II, 260). Although they may have had husbands in regular employment and were not typically in households that actually fell below the poverty line, the wives of unskilled laborers still desired extra income, in their words, "'to supplement the husband's earnings,' 'to meet household expenses,' [and] 'to help keep the home going'" (Vol II, 276). A similar explanation is given for the large presence of married women in the service industries, and in particular in office cleaning: "If there is a financial stress at home, because the man is out of work or on short time, or the rent is too high, or the children too many, or a sick child needs extras, the mother turns to office cleaning. Morning and night cleaning is almost always performed by women who add these hours of labour to the household work they perform in the home" (Vol II, 461).

Labor force participation rates were much higher among female household heads and single women, and these groups have normally been treated as equivalent to male workers in the modern labor supply literature. In the historical context, however, there is evidence that young single women, who often lived at home until marriage, were responsive to household need in their labor supply behavior. Several studies of the U.S. in the late nineteenth and early twentieth centuries stress that, in this period, young adults living at home were the most important source of secondary labor for working class households, that they tended to pool their income with that of the household, and that their labor supply decisions were often made within a household framework (Goldin 1979; Fraundorf 1979; Rotella 1980; Moehling 2005). Goldin's (1979) study of teenage labor force participation in Philadelphia in 1880 found evidence that daughters substituted for mothers in the labor force, but also that daughters were far less likely to be working than were sons if there was no mother present in the household -- they could also substitute for an absent mother in home production. Horrell and Humphries (1995), Horrell and Oxley (1999) and Horrell and Oxley (2000) all stress the vital contributions that children made to household income in Britain in the nineteenth century. The NSLLL says almost nothing about the household situations of single working women, but does touch on those of widows. Llewellyn Smith notes that widows were "rather unexpectedly found to be seldom entirely dependent on their earnings, the majority having other resources in the form of pensions or assistance from relatives" (Vol II, 276). They were eligible for widows' and orphans' pensions, and also often depended on a working age son or daughter present in the household. Goldin's (1986) study of Philadelphia in 1860 found that the presence of an adult son or daughter reduced the probability that a female household head participated in the labor market.

Thus there is reason to believe that all three groups of females would have been more likely to be working in the event that other sources of household income fell short, though it would also be expected that married women and widows would have been more sensitive to low household income than young single women. The second important point is that they did so in spite of, and alongside, significant household duties. Again, this is most plausible in the case of married women, although female household heads are likely to have had primary responsibility for domestic work as well. Roberts (1988, 73) stresses the high and escalating standards of housekeeping expected of married women in the early twentieth century, and argues that a strengthening of the male breadwinner ideology negated the potential effects of smaller family size and more convenient houses on freeing women's time from domestic work. There is clear evidence in the NSLLL that married women in particular had to fit work time around household duties. Llewellyn Smith observed that the typical female home worker "gives to tailoring such time as she can spare from the competing claims of house-work, cooking and the care of the family" (Vol II, 274). Daily domestic service work was popular among married women and widows with children because it could be found (and paid) by the hour, the half-day, the day or the week and thus could be scheduled when needed (Vol II, 453). Office cleaning, it is noted, was "of a nature that almost any woman can undertake" and the hours, generally before 9am and after 6pm, "are such that they can usually be combined with ordinary household duties" (Vol II, 461). While, again, there is less evidence with regard to the duties of single women in the household, Hatton and Bailey (1993, 232) note that young women were often needed by the household to help with child care and domestic chores and that, they too, responded to whichever household need was greater -- that of a monetary contribution or that of extra household work.

The target income model of female labor supply implies that, for workers driven into the labor force by need, the income effect of a wage increase dominates the substitution effect -- an increase in the wage allows workers to reduce their hours and return to household duties. As Mincer (1962, 45) pointed out, the strength of the substitution effect depends on the degree to which substitution between home production and wage goods is possible. With increased opportunities to substitute market goods (such as prepared food, cleaning services and child care) for home production, housewives later in the twentieth century were increasingly able to respond to wage increases by increasing hours of work out of the home. The substitution effect is likely, however, to be dampened in times and places when substitutes for home production were less available and more expensive. While there are examples given in the NSLLL volumes of housewives sending out laundry and buying prepared food outside of the home, these options appear to have been relatively expensive and not very common among the working class population of London in 1930. The chapter in the NSLLL relating to household duties actually makes the case that poor women would have been less able to afford either purchased services or to give up time in domestic work, because the fact of being poor increased the effort it took to keep the home going. Housewives often did food shopping every day, for economy, and especially in poor households "the housewife dares not purchase more than the small amount she can afford to let her family eat at one meal" (Vol VI, 310). In some extreme cases, married women worked in the morning in order to be able to afford that day's midday meal. The observation that many women appeared to shop more than once a day "has been ascribed to the fact that wives after getting the breakfast go out to work, very often as charwomen, and they have not the money wherewith to buy the midday meal until they have earned it that same

morning" (Vol VI, 311-12). Poorer dwellings were also much more likely to lack running water and to have shared kitchens, increasing greatly the amount of time required for food preparation and washing. Young children, of course, greatly increased the demands on the time of all working class wives. The author of the chapter, Miss F.A. Livingstone, notes that, "Where there are young children not at school, the work of a mother is never done" (Vol VI, 315).

The main contribution of this paper is to estimate the relationship of wages to hours among female workers in the largest city of the first industrial country during the interwar period. As I have just laid out, there are reasons to believe that women in this historical time and place are likely to have acted primarily as secondary workers who joined the labor force in order to supplement insufficient household income and faced significant trade-offs between market work and home production, which might have induced them to reduce work hours with an increase in the wage. The only other historical study I know of that examines the relationship between hours and wages is Costa (2000a), which estimates negative wage elasticities with respect to daily hours for both male and female workers in the U.S. in the 1890s.[13] For male workers, this relationship held across wage decile, within wage deciles, and within industry and occupation groups (Costa 2000a, 169-70).[14] She postulates that a labor supply response in which income effects were larger than substitution effects could be one possible explanation for this observed negative relationship, suggesting that "in the past workers may have responded to wage increases by buying a shorter workday rather than by increasing their hours of work" (Costa 2000a, 171).

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[13] Costa (2000a, 164). Her data come from various state bureaus of labor statistics, and controls include the worker's age, whether the worker had any dependents, a dummy for foreign birth, and fixed effects for the state and year of the report. She stresses that this is not a well-defined labor supply curve.

[14] Unfortunately the data on female workers were too limited to be broken down in this way.

III. The New Survey of London Life and Labour

The NSLLL was undertaken between 1929 and 1931 by researchers at the London School of Economics under the direction of Hubert Llewellyn Smith, and covered approximately 28,000 working-class households, about a 1-in-50 sample, in 38 boroughs of greater London.[15] The methodology of the household survey was developed by Arthur Bowley; households were sampled from directories of inhabited buildings kept by local borough offices.[16] Its main objective was to determine whether poverty among the working classes had increased or decreased in the 40 years since Charles Booth's pioneering *Life and Labour of the People of London*, and as a result the survey contains a thorough accounting of the weekly earnings of each working household member and of the amount and sources of non-labor income. Detailed information about the ages and relationships of earning and non-earning household members, as well as information about the occupations and weekly hours of work of earners, make the NSLLL an ideal source for the study of household labor supply decisions.[17]

Since the focus of the survey was on working class poverty, households that were deemed by the investigator, or by subsequent examination of the completed survey card, to be middle class were removed from the sample. The distinction between working class and middle class

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[15] The contents of the surviving 29,915 household record cards were computerized and coded in a project overseen by Tim Hatton, Roy Bailey and Anna Leith at the University of Essex and Dudley Baines and Paul Johnson at the LSE, and the resulting data sets were deposited in the UK Data Archive.

[16] One in fifty households were selected from these lists by choosing every fiftieth listing, and Bowley notes that "the list of houses selected for investigation was made at headquarters quite independently of any local considerations. From it houses were assigned to investigators, who were instructed not to make any variation except for such reasons as that a house was unoccupied," in which case specific further instructions were provided to substitute the house to the left hand side in the first instance, or the house to the right hand side if no such house exists or was also unoccupied (NSLLL, Vol III, 32, 413).

[17] The instructions given to the interviewers do not specifically address from whom they were expected to obtain information, but did specify that "Vague estimates of husband's earnings by wife, of child's by parent, or of lodger's by landlady, should not be entered until an effort has been made to see the wage-earner concerned. Where only estimates can be obtained, that fact should be noted together with reason why exact statement cannot be obtained" (NSLLL Vol III, 415).

households was primarily based on the occupation of the male household head or primary wage earner, with professional and clerical occupations designated as middle-class.[18] In cases where the occupation did not clearly indicate a social classification -- such as shopkeepers, some shop assistants and various self-employed and small employers -- those with a yearly income of less than £250 were designated as working class. Bowley estimated that between 20% and 30% of families in the survey area were classified as middle class (NSLLL, Vol VI, 30).

For this paper, a data set of 20,962 households with complete enough information on household demographics, earnings, income, and rent paid, as well as with at least one adult female present, was converted into a data set of 29,151 individual adult females.[19] Table 1.2 summarizes some characteristics of the data, in aggregate and separately for female household heads, wives of household heads, and other females (mostly unmarried adult daughters living with parents or other family members). The female labor force participation rate for adult women (defined as age 14 and over) was about 33%, which is somewhat lower than the figure of 42% given for London by the 1931 census (Hatton and Bailey 2001).[20] There were, of course, great differences in labor force participation rates by age and marital status. Over 80% of the relatively young and mainly-unmarried other category were engaged in paid work, while only about 44% of female household heads and less than 7% of wives could be considered as active within the

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[18] Full instructions to investigators regarding the designation of middle class households given in the NSLLL, Vol. III, p. 416. In many cases, the children of working class household heads were engaged in clerical and professional occupations, and these were included in the survey.

[19] This is essentially the same set of households used in Hatton and Bailey (1998). I am very grateful that they were generous enough to share the data used for that paper, and in particular for their calculation and application of several different poverty measures, which are used in this paper.

[20] Hatton and Bailey (2001) addresses the issue of disparities between the labor force participation rates found in the interwar household surveys and those given by the 1921 and 1931 censuses. Typically, the survey rates were lower than those given in the census, and they hypothesize that the way the census defined labor force participation – by the statement of an occupation – might have inflated the numbers of married and older women who were counted as workers since they might have declared a former occupation.

Table 1.2: Basic Descriptive Statistics of Females and Households in the NSLLL

	All	Heads	Wives	Other
Full Sample				
Total number	29,151	3,516	16,867	8,768
Participation rate	33.5%	43.8%	6.8%	80.8%
Household size	4.11	2.33	3.92	5.19
Children in household	1.02	0.34	1.19	0.97
Age	37.1	56.4	41.2	23.3
Sample of Workers				
Age of workers	27.0	48.3	39.6	21.3
Weekly hours of workers	43.3	37.4	35.3	45.7
Hourly wage of workers (d.)	7.58	9.88	8.87	6.91
Occupied in service, laundry, cleaning	27.1%	61.2%	60.2%	14.3%
Occupied in clothing industry	21.2%	16.1%	12.3%	23.7%
Occupied in manufacturing	24.4%	10.3%	16.9%	28.7%
Occupied in retail industry	14.5%	7.9%	8.1%	17.0%
Occupied in clerical or professional trade	12.5%	3.8%	2.0%	16.1%

Note: Sample of workers includes 9,767 occupied females (1,541 heads, 1,143 wives, and 7,083 others); 30 had a missing or unknown occupation.

labor force. Figure 1.1 displays the corresponding age-participation profile, which peaked in the late teen years and then fell off dramatically after age 25, as the majority of working young women exited the labor force on marriage. The age-wage profile, on the other hand, climbed steadily until age 40-44 and then fell off slightly, and the average wage figures given in Table 1.2 follow this pattern – those married women who did work commanded higher wages than single women, and working widows out-earned working wives.

As is also apparent in Table 1.2, there was a clear shift in employment opportunities, or preferences, after marriage. Married women and widows were overwhelmingly employed in the personal service industry, which included domestic service, office cleaning and laundry, while single women were concentrated in manufacturing, retail and clerical work. The clothing industry, which was the second-largest employer of female labor in London (see Figure 1.2), utilized significant proportions of all three groups. Table 1.3 compares average hours of work per

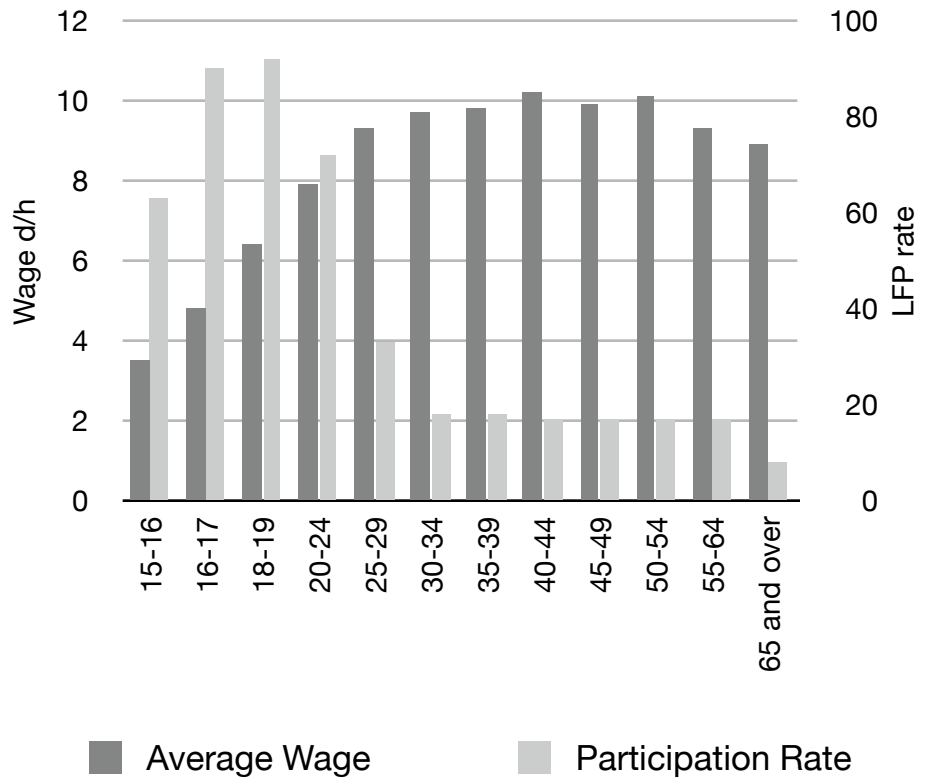
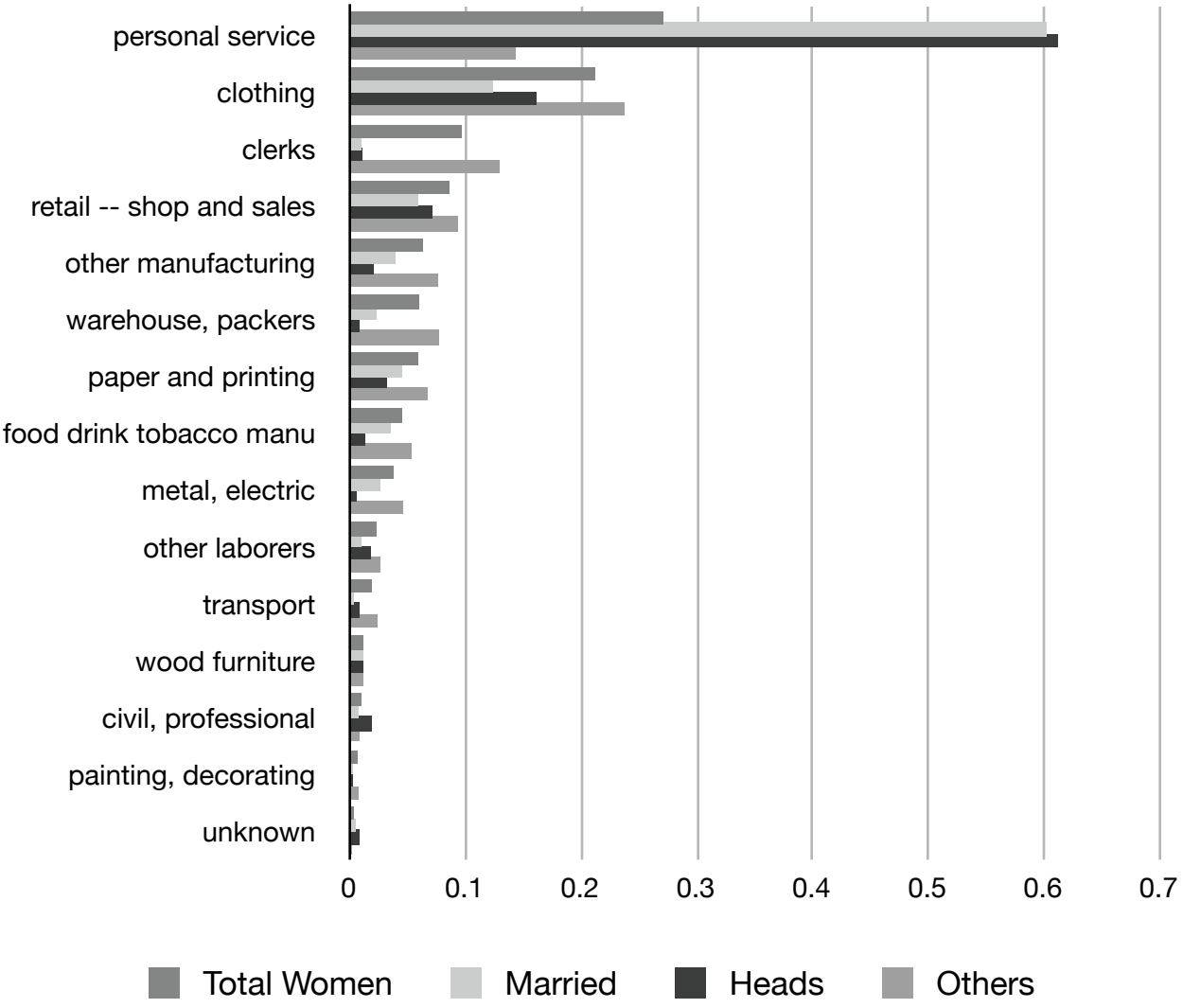


Figure 1.1: Participation Rates and Wages by Age for Females in the NSLLL

week and hourly wage rates in each of the major sectors employing women in the metropolis. Nearly half of the NSLLL sample of working women were employed in personal service or the clothing industry, both of which were relatively well-paid compared to the manufacturing jobs that belonged mainly to younger women. At the top of the wage distribution sat a small group of high-wage civil servants and teachers, followed by a relatively large and growing host of young female clerical workers.

The longest work-weeks appear to have been associated with the retail and manufacturing trades, and thus largely with younger workers, while the shortest are observed in the civil and professional and personal service category, and thus largely with older workers. Interestingly,



Note: Proportion out of 9767 working women employed in each category

Figure 1.2: Occupational categories of female workers in the NSLLL

these two categories also display the largest standard deviations in hours worked. In the case of the civil and professional trades this is probably simply the result of the small sample, since they were likely to have had set workweeks. In the case of the service industry, however, it most likely represents a larger spread in weekly hours worked than was available to workers in other trades. Cleaning and laundering jobs would in many cases have offered married women and

widows with household obligations relative flexibility in deciding how many jobs and hours per week to take on, while women working in factories, retail stores or office jobs would have had a

Table 1.3: Characteristics of Female Workers by Occupational Groupings in the NSLLL

	Number	Average Wage (d/h)	Average Hours per Week	Average Age
Civil, Professional	96	17.08 (11.44)	39.3 (11.4)	33.2 (13.1)
Clerks	944	8.91 (4.02)	44.8 (4.24)	21.3 (5.5)
Personal Service	2642	8.19 (3.36)	36.4 (14.26)	37.4 (15.6)
Transport	184	7.39 (4.29)	44.2 (6.01)	21.3 (9.3)
Clothing	2070	7.36 (3.30)	45.2 (6.5)	24.7 (11.6)
Retail	838	7.24 (3.73)	48.7 (7.66)	25.5 (11.7)
Wood Furniture	113	7.14 (3.21)	44.4 (6.74)	24.7 (11.6)
Food, Drink, Tobacco	437	6.85 (2.72)	45.8 (4.96)	22.7 (8.0)
Paper and Printing	572	6.84 (3.06)	46.1 (5.46)	23.7 (10.5)
Painting, Decorating	60	6.75 (2.45)	45.9 (7.11)	21.9 (8.1)
Other Manufacturing	614	6.53 (2.65)	46.1 (4.82)	22.5 (8.9)
Warehouse, Packers	582	6.26 (2.49)	46.3 (4.56)	20.7 (6.6)
Other Laborers	220	6.15 (2.84)	45.5 (7.10)	24.6 (13.3)
Metal, Electric	363	6.06 (2.26)	46.1 (4.93)	21.0 (7.2)
Unknown	30	8.79 (4.16)	40.8 (18.19)	35.4 (17.5)

Note: Standard deviations in parentheses.

more finely prescribed hourly workweek. The distribution of weekly hours worked among working women in the NSLLL is given in Figure 1.3. The vast majority worked a standard workweek of somewhere between 40 and 50 hours, but, of those who worked fewer, nearly all were engaged in a domestic service or office cleaning occupation. Figure 1.4 provides distributions of weekly hours and hourly wages among workers within each of the five major occupational/industrial groupings -- in line with the standard deviations mentioned above, the greatest variation in weekly hours was found among women working in the service sector. The wage distributions shown in Figures 1.3 and 1.4 indicate that the vast majority of female workers earned between three and twelve pence per hour, with very few earning more than 15 pence per hour, and that workers in the clothing, service and retail sectors had wider distributions of wage levels than did workers in manufacturing and white collar jobs.

Figure 1.5 and Table 1.4 highlight some relationships between the labor force participation rates of wives and single women living in male-headed households to the wage level, industry of employment and employment status of the male household heads in the NSLLL. Figure 1.5 shows sharply declining labor force participation rates of married women as their husbands' wages increase. The trend for single women is not as straightforward or as dramatic, but appears to be mainly decreasing in the male wage as well. Table 1.4 orders the labor force participation rates of all females, wives and others by the industry of employment and skill level of the male household head; the wives and daughters of men engaged in professional, clerical and skilled occupations were less likely to be working than were those of men in semi-skilled or unskilled occupations. This is also evident in the ordering of labor force participation

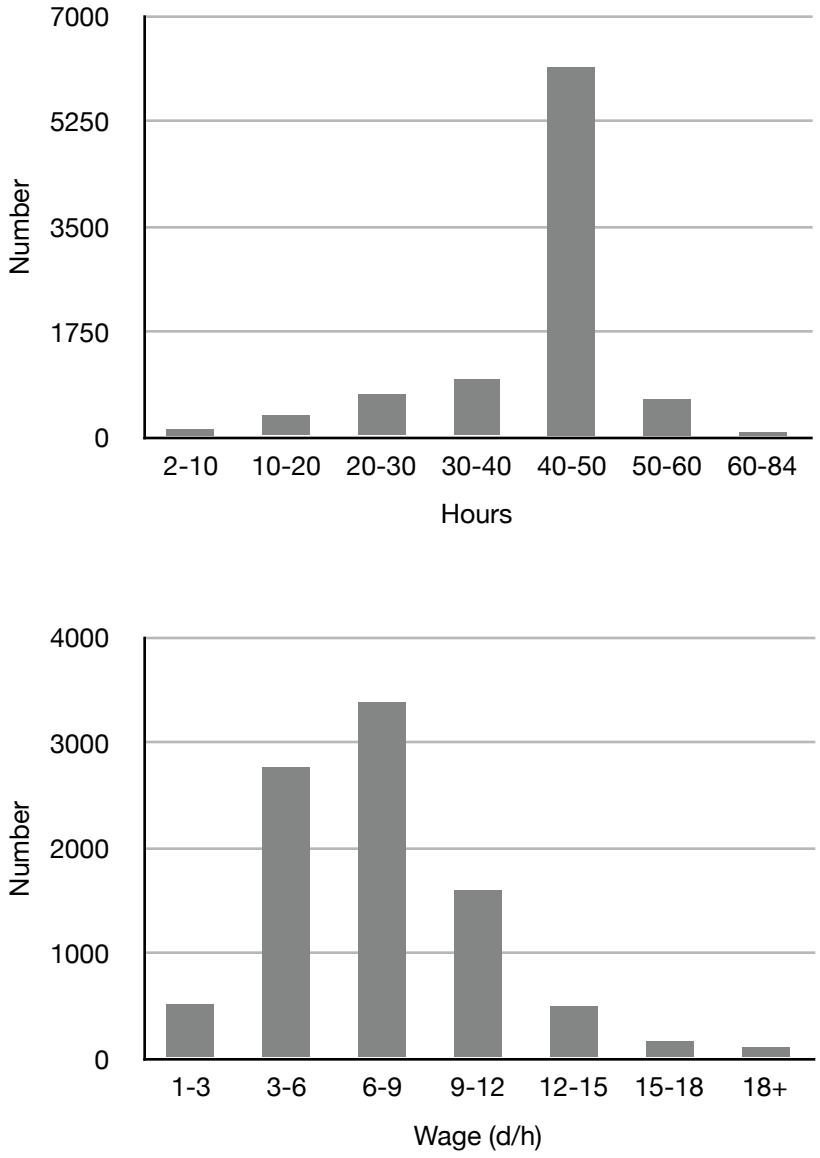
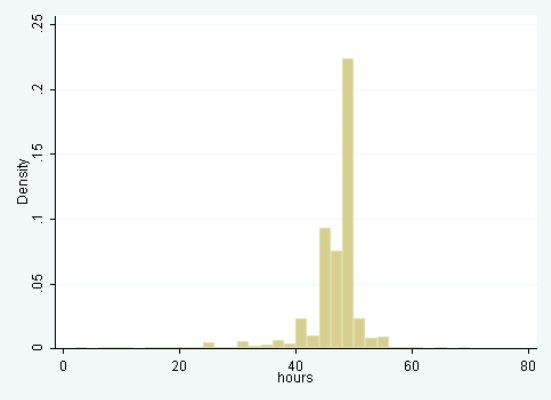
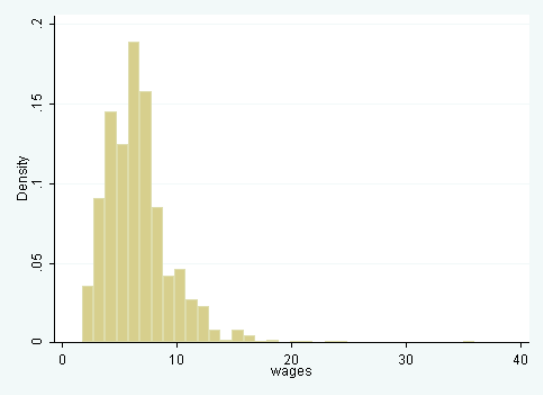


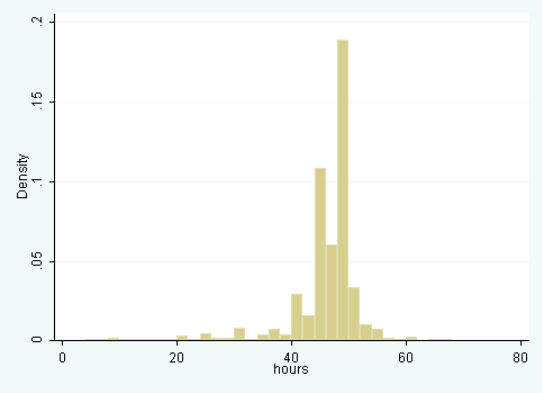
Figure 1.3: Distribution of Weekly Hours and Hourly Wages of Working Women in the NSLLL

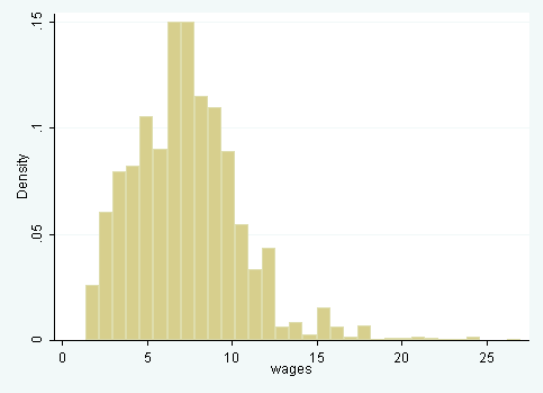
Manufacturing



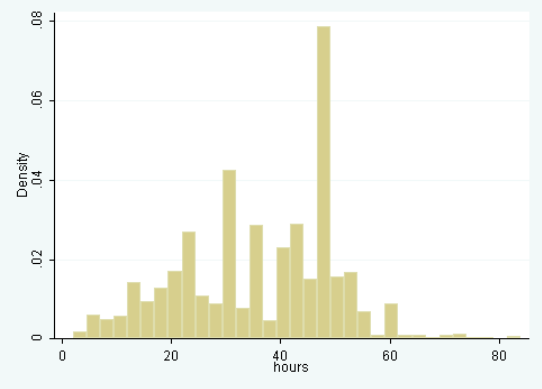


Clothing





Service



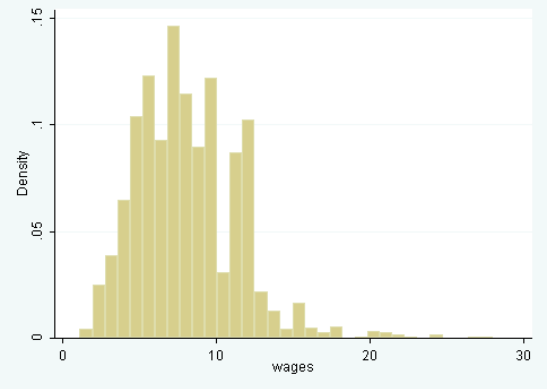
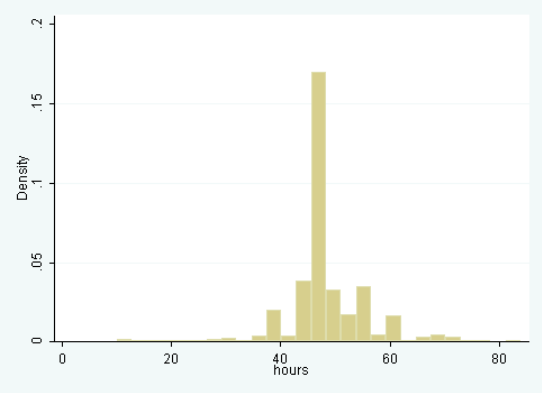
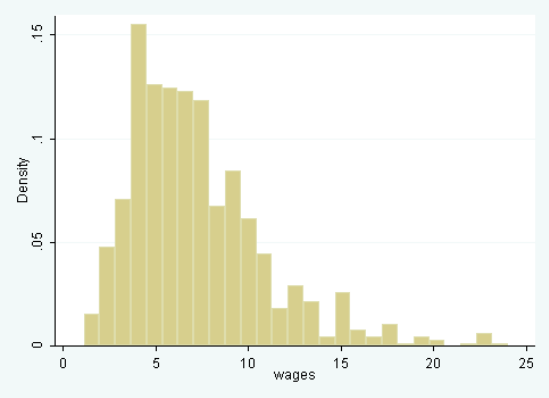


Figure 1.4: Distributions of Weekly Hours and Hourly Wages of Working Women in the NSLLL by Industrial/Occupational Groupings

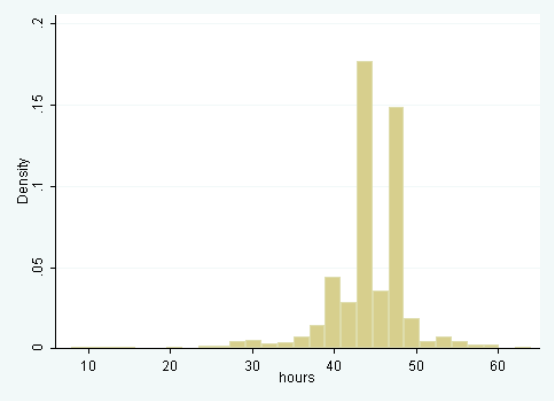
Figure 1.4 (continued)

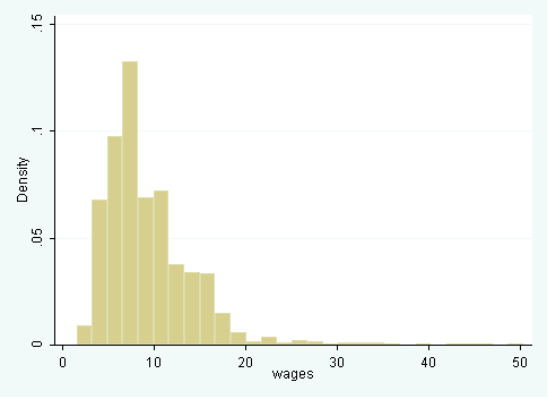
Retail





White Collar (Clerical and Professional)





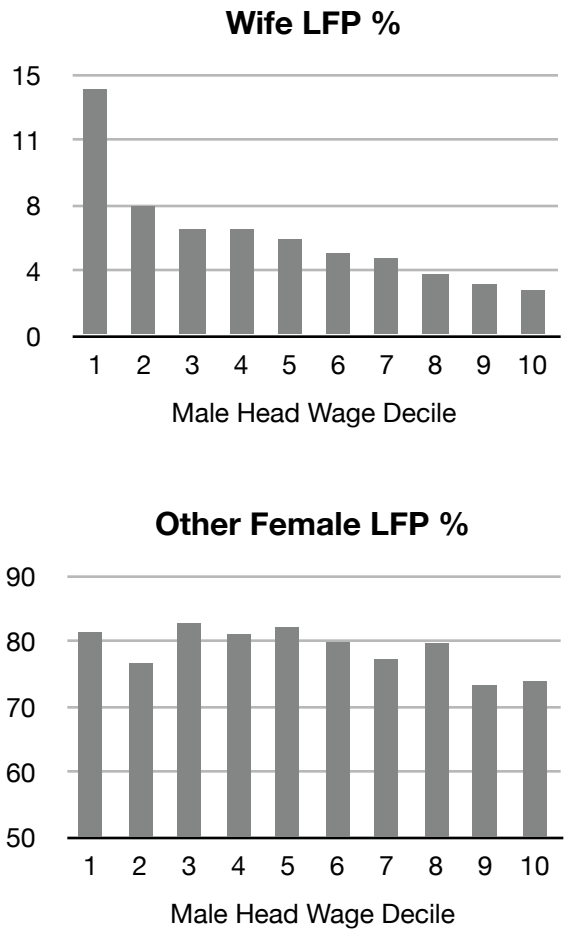


Figure 1.5: Labor Force Participation Rates of Wives and Unmarried Females According to the Wage Level of the Male Household Head in the NSLLL

Table 1.4: Female Labor Force Participation Rates by Occupation, Skill Level and Employment Status of the Household Head in the NSLLL

	Number of HH Heads	Number of Females	FLFP Rate	FLFP Rate Wives	FLFP Rate Other	Average Children per Wife
Occupation of Male Head						
Unknown	31	47	0.40	0.13	0.88	1.13
Other Laborers	1959	2726	0.31	0.08	0.84	1.39
Clothing	495	727	0.30	0.04	0.80	1.13
Warehouse, Packers	644	907	0.30	0.07	0.82	1.08
Personal Service	962	1288	0.30	0.09	0.83	1.08
Other Manufacturing	616	851	0.30	0.07	0.83	1.21
Wood Furniture	962	1358	0.29	0.06	0.77	1.10
Paper and Printing	488	684	0.28	0.05	0.80	1.04
Food, Drink, Tobacco	404	570	0.28	0.05	0.80	1.35
Painting, Decorating	674	949	0.28	0.06	0.80	1.30
Building	1184	1604	0.27	0.08	0.76	1.30
Transport	4239	5711	0.27	0.07	0.79	1.37
Retail	1271	1658	0.24	0.07	0.74	1.08
Metal, Electric	2110	2791	0.24	0.05	0.77	1.16
Civil, Professional	422	520	0.18	0.04	0.73	1.11
Clerks	44	61	0.18	0	0.61	0.72
Skill Level of Male Head						
Professional	113	151	0.23	0.03	0.72	0.68
Skilled and Clerical	8297	11235	0.25	0.05	0.77	1.11
Semi-skilled	3214	4352	0.28	0.07	0.80	1.31
Unskilled	4900	6748	0.31	0.09	0.82	1.42
Unknown	474	642	0.34	0.11	0.82	0.38
Employment Status of Male Head						
Employed	15501	20980	0.26	0.06	0.78	1.22
Unemployed	1004	1472	0.41	0.17	0.86	1.45
Not in Labor Force	941	1322	0.36	0.11	0.82	0.32
Employment Status of Female Head						
Employed	1488	618			0.85	
Unemployed	53	31			0.77	
Not in Labor Force	1975	1212			0.87	

rates by industry, where the biggest difference is between the wives and daughters of clerks and men in the civil service and other professional jobs, and all the others. Finally, the wives of unemployed men were almost three times as likely to be working than were the wives of employed men, and although the effect is less dramatic, their daughters appear to have been affected as well. Male unemployment was, as Gazeley notes, the single most important source of poverty identified by the interwar poverty surveys, including the NSLLL (Gazeley, 65).

One thing that makes the NSLLL stand out as a source especially well-suited to answering questions about how household income constraints affected women's labor supply is the attention paid to precise gathering of earnings information and the creation of a household-size and -composition specific set of minimum income standards (or poverty lines). Hatton and Bailey (1998, 584) examine the extent of poverty revealed by the NSLLL and find that, depending on the measure used, between 6 and 22 per cent of households fell below the minimum standard.[21] Table 1.5 presents their figures for each of five different poverty lines, and then my recalculation of what they would have been in the absence of female workers' contributions to household income. Removing the earnings of each female worker individually from total household income would have increased household poverty rates by 50-80 per cent, a result that is similar in magnitude to that found in a similar exercise performed by Hatton and Bailey (1998, 587-8) for the interwar system of social security.

Table 1.5 also presents calculations of female labor force participation rates in households above and below each poverty line. In general, females were actually less likely to be working in

[21] Income and needs net of rent.

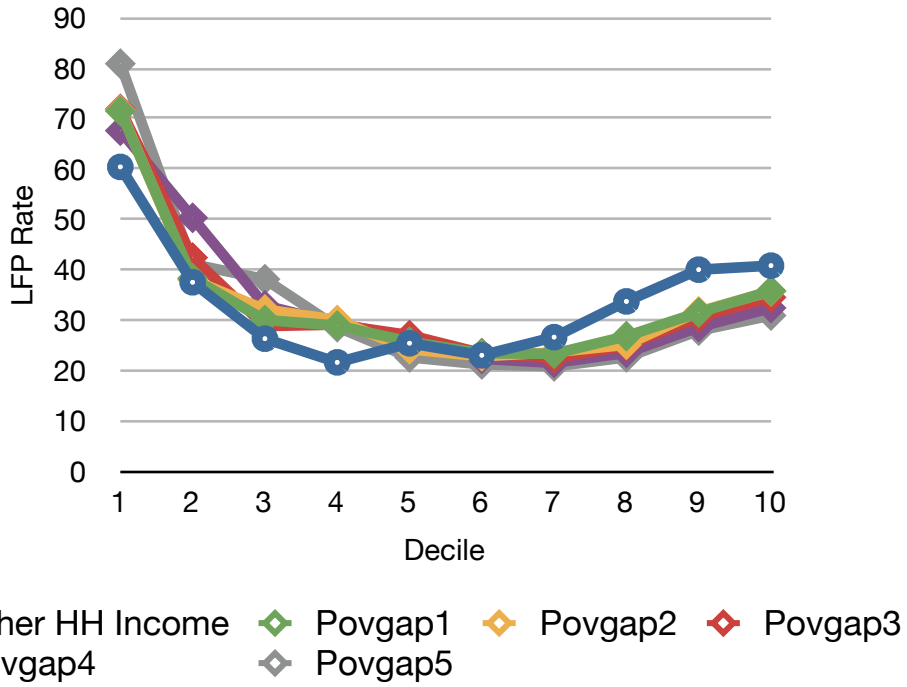
Table 1.5: Poverty and Female Labor Force Participation

	Participation Rates %				Poverty Rate %	
	Below Minimum	**Above Minimum**	**Below Min Without**	**Above Min Without**	**With**	**Without**
NSLLL	25.3	34.3	59.2	28.2	9.3	17
Adjusted NSLLL	25.1	34.5	56.6	28.3	10.7	18.5
Rowntree/ Linsley	26.6	35.2	48.8	27.4	19.9	28.5
Beveridge	26.5	35.5	49	26.2	22.2	32
Social Security	34.6	33.4	72.5	27.3	5.8	13.7

Note: Poverty lines as defined by Hatton and Bailey (1998). Below Min/Above Min refer to household income and the relevant poverty line; Below/Above Without refers to household income subtracting the earnings of the female in question. Poverty Rate With gives the household poverty rate for the given poverty line; Without recalculates what it would be each female's earnings were subtracted from her household's total income.

poor households, which suggests that the inability or unwillingness of some women to seek or find work outside the home might have contributed to their households' poverty. But among households in which total income would have fallen short of the minimum standard without the earnings of any individual female worker, female labor force participation rates were about double those in households that were safely above the poverty line without that female worker's earnings (56-59 per cent versus 28 per cent looking at the NSLLL and adjusted NSLLL poverty lines). These calculations can only be a crude approximation of the effect, but suggest that women's work was responsive to the poverty status of the household and could be an effective strategy for avoiding or alleviating household poverty. Figure 1.6 plots female labor force participation rates according to the decile of household income (excluding any individual

female's earnings) and by the distance of household income from the poverty line -- as would be expected, female labor force participation rates were very high among the poorest households, somewhere between 60 and 80% depending on the poverty measure used, and fell off steeply as household income increased. The slight upturn at the very highest levels of household income reflect the fact that the highest-earning households were those with multiple earning adult children present -- so the high labor force participation rates of adult daughters were in some instances be associated with higher levels of household income.



Note: Observations of average participation rates ordered by decile according to other household income (with individual female earnings removed) or according to how far above or below each of Hatton and Bailey's (1998) five poverty lines other household income put the household.

Figure 1.6: Poverty and Female Labor Force Participation in the NSLLL

IV. Methodology and Results

The main contribution of this paper is to determine the relationship between wages and hours for working women in interwar London, and to examine whether their behavior was consistent with a target income model in which females serve as secondary workers who enter the labor force in order to make up for short falls in household income. Of course, labor force participation is also an important part of the story, so I estimate a a Probit model of the labor force participation decision and an OLS model of hours worked per week, conditional on working.[22] The target income model predicts that female household members would be more likely to enter the labor force when household income is low, and that their own wages would be relatively unimportant in determining labor force participation. Among working women, we would expect the wage to have a strong, and potentially negative, effect on hours worked. Secondary workers forced into the labor market by low household income would need to work longer hours at lower wages, and would plausibly reduce hours in order to focus on domestic duties at higher wage levels. We would thus expect other household income to be the more significant factor in the labor force participation decision and the own wage to be the more significant factor in determining hours of work.

In an ideal data set, we would have some measure of what each household's target income was. The NSLLL's poverty line offers a slightly less than ideal, but still potentially informative, measure of the minimum level of income necessary for basic standards of food, clothing and shelter. It was, however, a very basic standard and was set in 1930 so as to correspond as closely as possible with Charles Booth's 1890 standard. The difficulty, Llewellyn

[22] A Tobit model of labor supply that links the two has also been run; since the labor force participation rates are low, the Tobit results look very similar to the Probit results, and I believe the effects of various variables on the hours of work decision can be seen more easily in the OLS estimation of conditional hours.

Smith notes, was that "with the general rise in the standard of living in the generation before the war, and the further rise at least in unskilled labour ranks since 1914, many people would set the minimum higher" (Vol III, 72). The relevant target for a household in the NSLLL might not be this bare minimum but a harder-to-measure conception of the requisites for a civilized life in London during the interwar period. Still, it provides a useful lower bound and we would expect that women from households below this poverty line would be more likely to be in the labor force, and also that they might have been motivated to work even longer hours at any given wage rate. Women forced into the labor market by poverty are likely to have been balancing the need to earn with significant household duties (especially since, as noted in section II, the circumstances of poverty seem to have increased the time and effort required to accomplish many basic household tasks), and so we might expect them to have more elastic responses to changes in their own wage rates and to other sources of household income than other women. In order to test this, I include a variable indicating whether household income from sources other than the female in question was sufficient to meet the NSLLL poverty line, and I interact it with the wage and with other household income.

As was noted in the previous section, the unemployment of the household head was the predominant source of poverty in the interwar period, and male unemployment increased greatly after the depression hit Britain in 1930. Thus I follow previous studies of added-worker effects in the U.S. and U.K. by Moehling (2001), Finegan and Margo (1994) and Hatton and Bailey (1988) by testing whether the unemployment of the male household head increased the probability that a female worker entered the labor force and whether it increased weekly hours of work. Another feature of interest of the interwar period in Britain was the great expansion of the unemployment

insurance system and of the social welfare system as a whole. Table 1.6 presents the proportions of women living in households that received one of the three most important sources of state welfare benefits -- unemployment insurance benefits, a widows', orphans' or old age pension, or poor relief -- and the average weekly amounts received.

Table 1.6: Proportions of Women in Households Receiving Benefit Income

Benefit Income	All Women	Average Amount (£)	Wives	Average Amount (£)	Female Heads	Average Amount (£)	Other Females	Average Amount (£)
UI	5%	1.1	5%	1.2	3%	0.89	7%	1.0
Pension	17%	0.81	9%	0.9	48%	0.73	21%	0.81
Poor Relief	3%	0.82	2%	1.0	9%	0.59	2%	0.90

Note: Average amount conditional on receipt of the benefit (the average among those receiving UI benefits, a state pension or local poor relief).

Pension and poor relief payments were most common in female-headed households, which reflects the predominance of widows (and orphans) in these households, along with their relatively advanced age and the lack of a male primary earner. In some specifications, benefit income received from unemployment insurance and widows' and orphans' pensions is entered separately from additional household income from other sources (mainly earnings). It is expected that benefit income might be a substitute for female labor. Neither the receipt of UI benefits by other household members nor the receipt of a widows', orphans' or old age pension would have been affected by the labor force participation or earnings level of an employed wife, widow or daughter. They were not means tested, but were designed in part to relieve recipients of the

burden of having to have a wife, widow or old person enter the labor market.[23] Thus a test of their effect on the labor supply behavior of female workers is to some degree a test of the success of the social welfare system. Poor relief, however, has been removed from benefit income and from total household income -- during the interwar period it largely served as a replacement for UI benefits once these had run out, but was likely to have been means tested by the local authorities which were responsible for its distribution.

Other variables of interest include the number of small children in the household, as well as a dummy variable indicating the presence of an older child with a younger, with the idea that an older child not yet of working age might provide supervision for younger children.[24] The presence of small children would generally be expected to reduce the probability that a married woman works outside the home, but it is unclear what the effect might be on household heads and other females. Children might represent additional mouths to feed and thus increase the likelihood that an older sibling goes out to work, or they might increase the value that an older daughter would have in home production assisting her mother. I also include variables indicating whether there was another adult female present and whether there was a non-household-head adult male present in order to look at the effects of other potential secondary workers being

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[23] After November 1931 a household means test was implemented with regard to Transitional Payments, which were supplementary benefits given once standard UI benefits had been exhausted (Hatton and Bailey, 2002, 633). This would have affected the households of the long term unemployed, but unfortunately nothing is known about the duration of unemployment in the NSLLL, so it is not possible to examine whether the implementation of this means test affected the labor supply behavior of other household members. Luckily, the vast majority of the survey had been completed by the end of 1931, so this would be expected to have affected very few if any households in the sample.

[24] It is generally not possible to assign children present in the household to any particular adult female where there is more than one; the overwhelming majority of married women live in nuclear households, so children in their households are most likely theirs. This is less clear in the case of widows, and depends on age and whether the widow is living with a grown child. Women listed in the other category are most likely to be living with their parents or with siblings, and in most cases children in the household were probably not theirs.

present in the household -- did the presence of alternative secondary earners reduce the likelihood that a widow, wife or daughter went out to work?

Of course, wages are observed only for labor force participants, and so must be imputed for non-participants.[25] Loosely following Hatton and Bailey (1988), wages for non-workers were predicted from a wage equation estimated for workers that includes a series of dummy variables for age group (in five-year intervals), for borough of residence, and for birthplace. The equation was estimated and wages were predicted separately for household heads, wives, and other females, and the equations for wives and other females included additional controls for the age and skill level of the male household head.[26] As was noted above and is evident from Figure 2, age is an important determinant of both the wage level and the participation decision, and so is included in both. Dummy variables for each of 38 borough of residence are meant to capture differences in local labor market conditions and provide the major source of variation in the wage equation and identification of the wage effect in the participation equation.[27] The inclusion of dummy variables indicating the skill level of the male household head is intended to capture the degree to which highly-skilled men were likely to be married (or fathers) to high-earning women and vice versa.[28]

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[25] An hourly wage could only be observed for those women with known earnings and hours, a sample of 8879, which is the sample used in the estimation of weekly hours worked. For the participation estimation, wages were also imputed for working women with missing hours-of-work information but observed weekly earnings.

[26] R-squared for the wage equation for wives = 0.09, for female household heads = 0.15 and for other females = 0.38.

[27] See Figure A1, which presents female labor force participation rates and average wages for each borough.

[28] It could be argued that the skill level of the husband or father also affects labor force participation rates and should be included in the participation specification as well; I have tried this, and it does not appear to add much explanatory value to that equation. Being married to or the daughter of a skilled or professional male household head does have a large and significant positive effect on the female wage.

1. Conditional Labor Supply Results

The OLS estimation of weekly hours of work takes the form:

$$H = \alpha + \beta'W + \gamma'I + \delta'X + \varepsilon$$

where W is the hourly wage (weekly earnings divided by weekly hours), I represents household income excluding the earnings of the female worker and poor relief payments, and X includes the variables discussed above -- an indicator for whether the household would have fallen below the poverty line without secondary earnings, the number of young children present, and dummy variables indicating the unemployment of the male household head and the presence of potential alternative secondary workers -- as well as controls for age and marital status.

Table 1.7 presents the results of the most parsimonious model, which includes only the wage, other household income and controls for age and marital status. The striking result is that the relationship between the wage and hours worked is negative and highly significant, and the coefficient obtained in column 1 translates into an uncompensated wage elasticity of -0.15.[29] The income elasticity is very small in magnitude (close to zero), which is a bit surprising, but in this case would be consistent with a story in which household income mainly affected the participation decision. Most subsequent specifications will continue to estimate the equation using OLS, but in Table 1.7 I present several alternatives. Using a wage variable which is generated by dividing weekly earnings by weekly hours is vulnerable to downward bias on the wage elasticity induced by measurement error. If hours are overestimated or earnings

[29] Evaluated at the mean; this is remarkably similar to the wage elasticities estimated for male and female workers in the 1890s in Costa (2000a).

Table 1.7: OLS/2SLS estimates of weekly hours, conditional on working (all females)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Wage/ Specification	Actual OLS	Predicted OLS	IV 2SLS	Heckman OLS	Actual OLS	Actual OLS	Actual OLS
Wage (d/h)	-0.836	-0.611	-0.875	-1.518	-0.816	-0.934	-0.922
	(0.043)***	(0.168)***	(0.044)***	(0.203)***	(0.031)***	(0.030)***	(0.031)***
Other HH Income	-0.134	-0.172	-0.132	-0.171	-0.127	-0.138	-0.135
	(0.038)***	(0.040)***	(0.038)***	(0.040)***	(0.042)***	(0.040)***	(0.040)***
Borough Controls	N	N	N	N	Y	N	Y
Ind/Occ Controls	N	N	N	N	N	Y	Y
Constant	44.812	42.992	45.141	54.503	43.038	51.072	50.407
	(1.455)***	(2.050)***	(1.459)***	(2.667)***	(1.247)***	(0.879)***	(1.219)***
Observations	8879	8879	8879	8879	8879	8879	8879
R-Squared	0.26	0.20		0.20	0.27	0.34	0.35
	Robust standard errors in parentheses						
	* significant at 10%; ** significant at 5%; *** significant at 1%						

Note: All specifications include controls for age using a series of dummy variables denoting age group in five-year intervals and controls for marital status.

Actual wage calculated from the data by dividing weekly earning by weekly hours.

Predicted wage uses the wage equation described in the text.

2SLS estimate uses the decile of the wage as an instrumental variable to correct for potential measurement error in the wage, as in Blau, Kahn and Moriarty (2003).

Heckman wage is predicted using the Heckman selection correction technique; the first stage probit for being observed in the labor force included as explanatory variables other household income, number of young children present and whether the male household head was unemployed, along with controls for age and marital status. The wage equation included dummy variables for age group, marital status, borough of residence, and birthplace.

Industry/occupation controls are a set of dummy variables for whether employment was in the service, white collar (clerical and professional), manufacturing, clothing sector, with the retail sector omitted.

underestimated, then an underestimated wage is associated with longer hours, and vice versa. Two common ways to correct for this are to instrument for the actual wage by using wages predicted from a wage equation such as that used to assign wages to non-workers in the participation function, or by using wage deciles as the instrument.[30] These are shown in columns 2 and 3 -- in both cases, the basic relationships between wages and household income and hours worked remain unchanged. Using predicted wages would give a slightly less negative wage elasticity, but neither correction makes a big difference to the results.

Another concern in estimating hours functions is that only working women are observed with hours and wages, but those women who have selected into the labor market might not be typical of the whole population. In modern labor supply studies, the concern is typically that more motivated or able women would be more likely to enter the labor force, work longer hours and command higher wages. In the historical case it is not so clear what selection would look like -- there is likely to be some mix of positive selection (motivated married women staying in the labor force, for instance) and negative selection (the wives of low-ability men forced into the labor market by their low earnings). Column 4 presents the results of using the Heckman selection correction technique to predict wages; it actually predicts a more strongly negative wage elasticity.

In the final three columns of Table 1.7, I add controls for the borough of residence and for the industry/occupation of employment. These are both attempts to control for the impact of demand for female labor, which might have differed by geographical location or by industry. Added separately or together, these have little effect on the results. There is also some concern

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[30] See Baker and Benjamin (1997), Blau, Kahn and Moriarty (2003) and Blau and Kahn (2007) for discussions of these methods.

that the estimated negative relationship could be an artifact of differences in industrial workweeks rather than target income behavior -- if, for instance, workers in lower paid industries like manufacturing were expected to work longer hours than workers in the higher paid white collar trades. Table 1.8 estimates the relationship between hours and wages within each of the five major industrial/occupational groupings. The relationship is strong and negative within each grouping, and the results also appear consistent with the degree of choice over hours that workers in each industry are likely to have had. The smallest coefficients are in manufacturing and the clothing trades, which were associated with factory work that would not have offered very flexible hours, while the largest is in the service industry, which provided a great deal of flexibility in hours to its largely older married and widowed workers. Figure 1.7 shows the relationship between average weekly hours and the wage decile within each industry/occupation group -- the relationship appears to be negative and strongest among workers in the service trades in the raw data as well. Table 1.9 provides OLS hours-of-work estimates for wives, household heads and other single women separately, and Figure 1.8 presents the relationship between average hours and wage decile by marital group. Again, the negative relationship is strong within each grouping in both the raw data and in the estimated equations, but is most negative among married women, who were most plausibly working as target earners given the strong stigma against their market work and the high demands on their time in domestic work. Figure 1.9 shows the estimated labor supply functions for each group. Uncompensated wage elasticities range from -0.42 for married women, to -0.22 for female household heads and -0.10 for other females. The negative income elasticity was strongest for female household heads, and they are the only group which appears to have had a positive compensated wage elasticity.

Table 1.8: OLS estimates of weekly hours, conditional on working

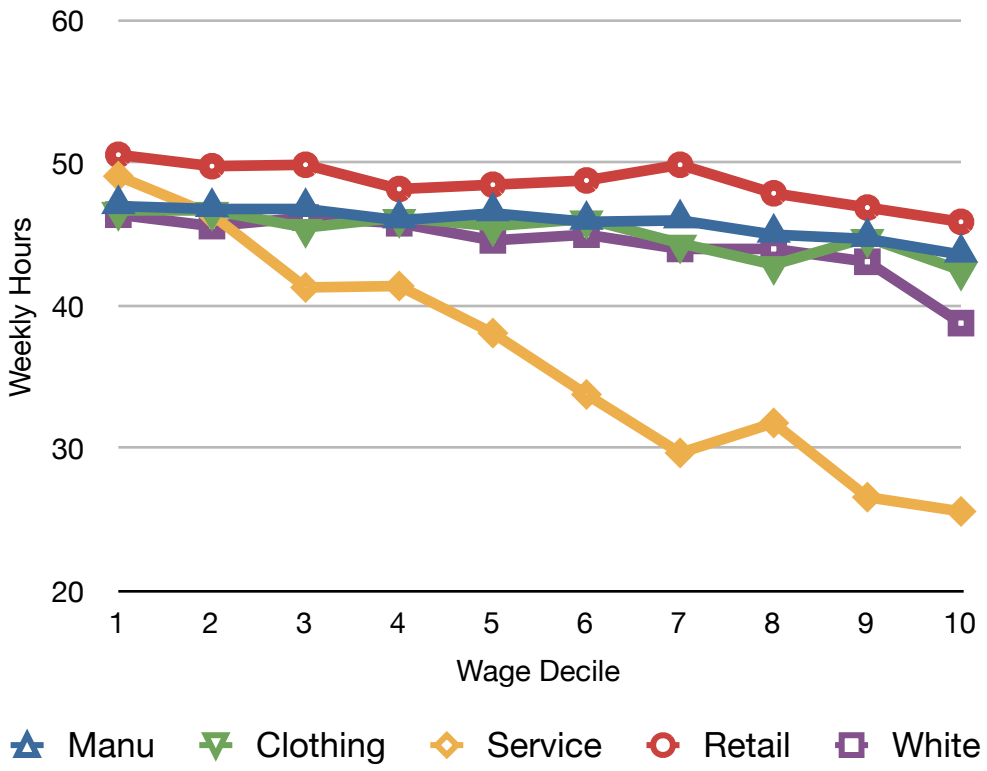
	(1)	(2)	(3)	(4)	(5)
	Manu	Clothing	Service	Retail	White
Wage (d/h)	-0.525	-0.485	-1.913	-0.549	-0.644
	(0.046)***	(0.060)***	(0.081)***	(0.093)***	(0.032)***
Other HH Income	-0.021	0.109	-0.582	0.110	0.117
	(0.045)	(0.061)*	(0.123)***	(0.123)	(0.064)*
Constant	49.209	39.588	50.786	59.004	46.216
	(1.822)***	(1.495)***	(1.593)***	(2.640)***	(2.327)***
Observations	2908	1897	2353	765	956
R-Squared	0.07	0.10	0.37	0.09	0.34
	Robust standard errors in parentheses				
	* significant at 10%; ** significant at 5%; *** significant at 1%				

Note: All specifications include controls for age using a series of dummy variables denoting age group in five-year intervals and controls for marital status and use actual wage.

Table 1.9: OLS estimates of weekly hours, conditional on working

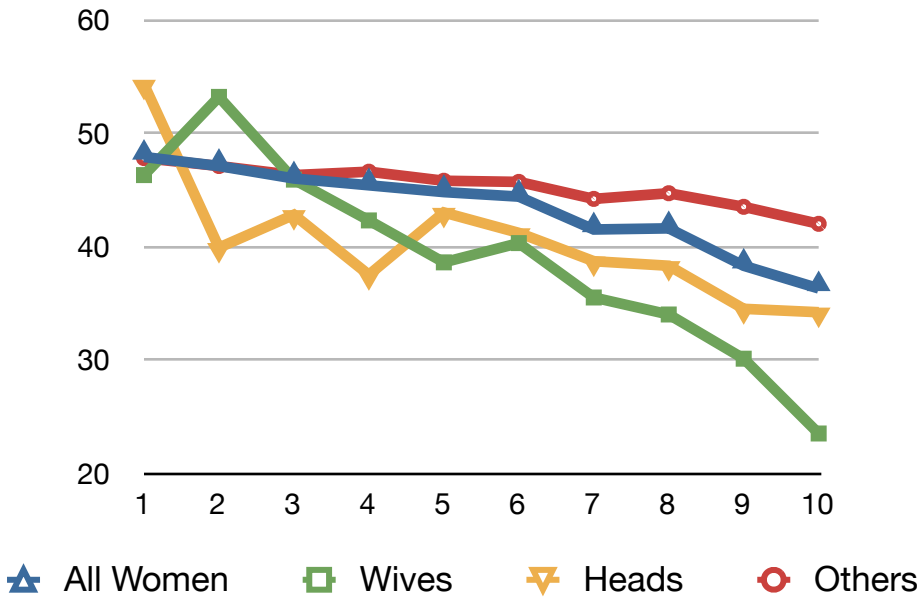
	(1)	(2)	(3)
	Wives	Heads	Others
Wage (d/h)	-1.656	-0.772	-0.690
	(0.238)***	(0.097)***	(0.027)***
Other HH Income	-0.048	-1.979	0.067
	(0.301)	(0.239)***	(0.032)**
Constant	50.716	40.548	38.921
	(3.835)***	(1.514)***	(2.249)***
Observations	1023	1320	6536
R-Squared	0.19	0.16	0.10
	Robust standard errors in parentheses		
	* significant at 10%; ** significant at 5%; *** significant at 1%		

Note: All specifications include controls for age using a series of dummy variables denoting age group in five-year intervals and use actual wage.



Note: Weekly hours ordered by wage decile within each industry/occupation group.

Figure 1.7: Weekly Hours Conditional on Working by Industry/Occupation Group



Note: Weekly hours ordered by wage decile

Figure 1.8: Weekly Hours Conditional on Working

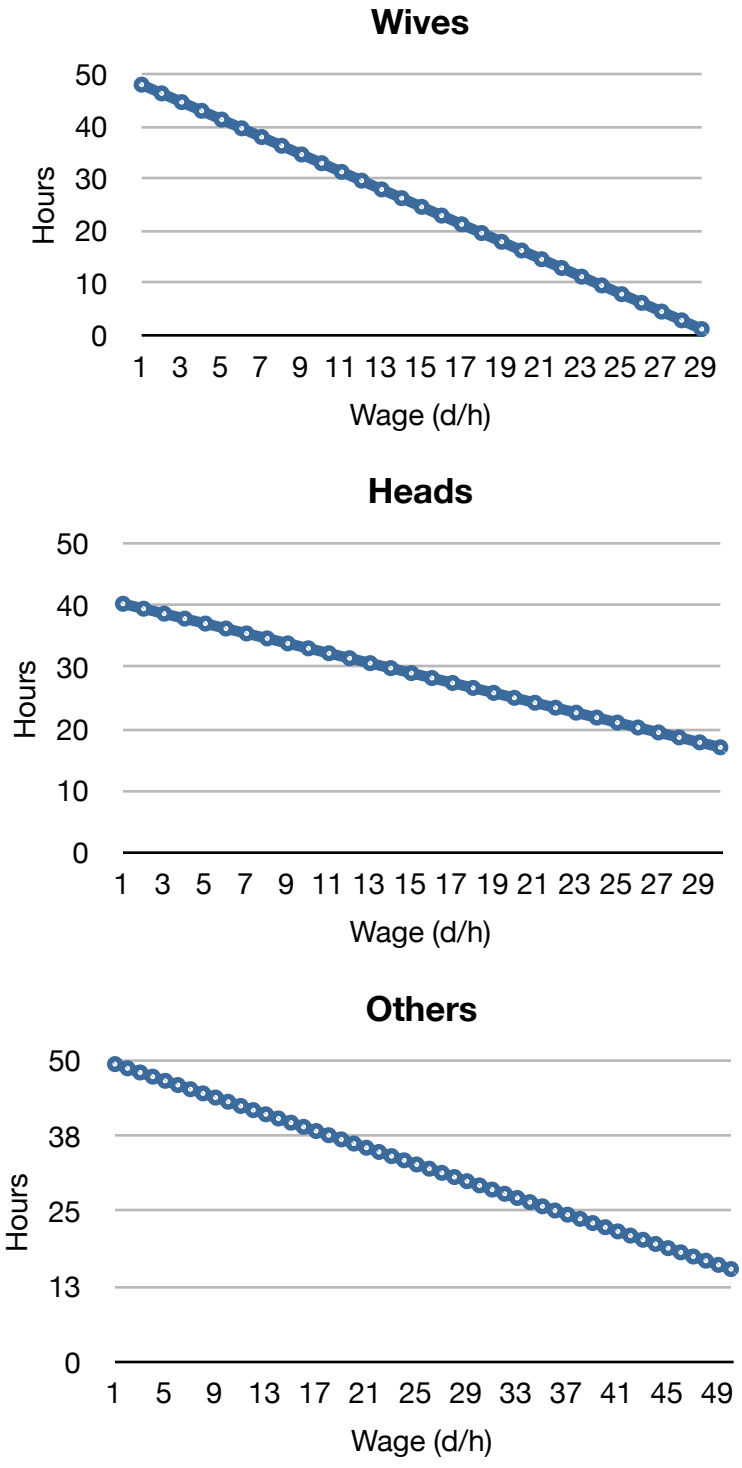


Figure 1.9: Estimated Labor Supply Functions

Table 1.10 explores whether the negative linear specification best fits the data. In column 2, a quadratic function appears to fit as well, which would suggest that a negative relationship between wages and hours at low wage rates might have turned positive at higher wage rates. Adding higher order terms as in column 3, however, reveals that the relationship probably is best described linearly. Figure 1.8 indicates no upturn in the relationship between hours and wages in the raw data, and Figure 1.10 shows the labor supply curves estimated using the linear specification in column 1 and the higher-order specification in column 3 -- the high order terms appear to add little explanatory value. In the final column, the wage is interacted with a series of dummy variables for the decile of the wage in order to allow for a non-parametric relationship -- each coefficient represents the relationship between the wage and hours of work within that decile of the wage level. The negative relationship between the wage and hours worked appears to become increasingly strong, rather than weak, as the wage level increases, although there is an apparent falloff in the wage elasticity in the top wage decile. Overall, the negative relationship between hours and wages appears to be very robust.

Tables 1.11 and 1.12 present the results of adding the additional variables of interest. For the most part, the results are as expected. Women from households that would have been below the poverty line worked longer hours per week. The overall effect was small in magnitude, less than one hour extra, but Table 1.12 reveals that the effect was larger among married women and female household heads -- wives from poor households appear to have worked almost five additional hours per week. The number of young children present reduced work hours, although that effect was negated if an older child was present as well. The negative effect of children on

Table 1.10: OLS estimates of weekly hours, conditional on working (all females)

	(1)	(2)	(3)	Wage Deciles	(4)
Wage (d/h)	-0.836	-1.443	-3.345	Wage*Decile 1	-0.567
	(0.043)***	(0.100)***	(0.316)***		(0.291)*
Wage^2		0.024	0.195	Wage*Decile 2	-0.704
		(0.004)***	(0.032)***		(0.221)***
Wage^3			-0.005	Wage*Decile 3	-0.997
			(0.001)***		(0.187)***
Wage^4			0.00005	Wage*Decile 4	-1.053
			(0.00001)***		(0.161)***
				Wage*Decile 5	-1.067
					(0.145)***
				Wage*Decile 6	-0.993
					(0.132)***
				Wage*Decile 7	-1.068
					(0.119)***
				Wage*Decile 8	-1.242
					(0.107)***
				Wage*Decile 9	-1.205
					(0.093)***
				Wage*Decile 10	-0.769
					(0.065)***
Other HH Income	-0.134	-0.119	-0.108		-0.105
	(0.038)***	(0.038)***	(0.038)***		(0.038)***
Constant	44.812	47.941	54.153		46.414
	(1.455)***	(1.531)***	(1.746)***		(1.694)***
Observations	8879	8879	8879		8879
R-Squared	0.26	0.27	0.27		0.28
	Robust standard errors in parentheses				
	* significant at 10%; ** significant at 5%; *** significant at 1%				

Note: All specifications include controls for age using a series of dummy variables denoting age group in five-year intervals and controls for marital status and use actual wage.

Column 4 enters the wage as a series interactions with dummy variables representing deciles of the wage distribution.

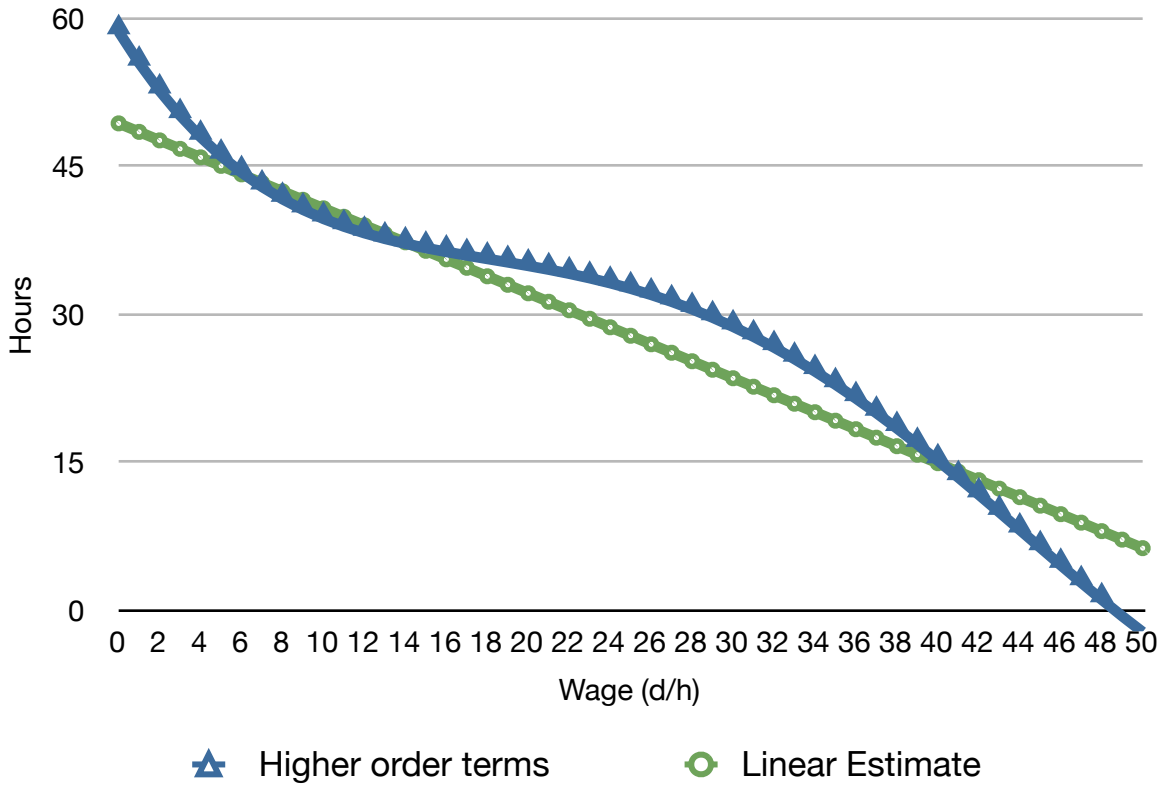


Figure 1.10: Estimated Labor Supply Curve (weekly hours, all women)

hours was concentrated among married women and widows, which is as expected. The presence of additional potential secondary earners appears to have had a significant negative effect on hours of work -- presumably with more than one secondary earner in the labor market, each individual worker could work fewer hours.

The unemployment of the male household head did not have a significant effect on the hours of work of young single women, which appears to account for its lack of significance within the full sample in Table 1.11, but it does appear to have significantly increased the weekly hours of work of their wives (see columns 1-2 and 5-6 of Table 1.12). This is true even controlling for the direct effect of poverty on hours, so suggests that wives increased their hours of work in response to the shortfall in income caused by their husbands' unemployment even in households that did not fall below the NSLLL poverty line when the male household head was out of work. The receipt of benefit income does appear to have allowed some reduction in hours of work among secondary workers, however, with an especially large effect on women from poor households (see columns 5 and 6 of Table 1.11). Table 1.12, column 4 reveals that this effect was especially strong for household heads from poor households -- widows with children would have had an especially difficult time balancing the need to earn with household duties, and widows' and orphans' pensions appear to have substituted very directly for earnings.

The most surprising set of results concerns the effect of other household income on hours worked. In the most parsimonious models presented in Tables 1.7-1.9 and in the first column of Table 1.11, its effect is mainly negative and significant as expected. However, when the poverty indicator is added in column 2, it removes the significance of household income, and in the

Table 1.11: OLS estimates of weekly hours, conditional on working (all females)

	(1)	(2)	(3)	(4)	(5)	(6)
Wage (d/h)	-0.836	-0.836	-0.803	-0.862	-0.866	-0.828
	(0.043)***	(0.043)***	(0.046)***	(0.043)***	(0.043)***	(0.046)***
Wage*Poor			-0.118			-0.109
			(0.075)			(0.076)
Poor W/out Female's Earnings		0.875	4.444	1.137	1.152	4.258
		(0.295)***	(0.782)***	(0.303)***	(0.303)***	(0.809)***
Other HH Income[a]	-0.134	-0.037	0.061	0.165	0.149	0.197
	(0.038)***	(0.044)	(0.044)	(0.049)***	(0.049)***	(0.049)***
Other HH Income*Poor			-1.647			-1.076
			(0.224)***			(0.234)***
Benefit Income[a]					-0.817	-0.115
					(0.225)***	(0.248)
Benefit Income*Poor						-2.926
						(0.534)***
Children Ages 0-5				-0.624	-0.610	-0.536
				(0.090)***	(0.090)***	(0.091)***
Older Child Present				0.967	0.884	0.929
				(0.417)**	(0.417)**	(0.416)**
Additional Adult Female Present				-1.356	-1.322	-0.837
				(0.530)**	(0.530)**	(0.545)
Additional Adult Male Present				-1.173	-1.097	-0.991
				(0.207)***	(0.208)***	(0.207)***
Male Head Unemployed				0.233	0.676	0.596
				(0.414)	(0.428)	(0.437)
Constant	44.812	44.166	43.303	45.059	45.556	44.497
	(1.455)***	(1.469)***	(1.472)***	(1.527)***	(1.530)***	(1.534)***
Observations	8879	8879	8879	8879	8879	8879
R-Squared	0.26	0.26	0.27	0.27	0.27	0.27
	Robust standard errors in parentheses					
	* significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Includes controls for age using a series of dummy variables denoting age group in five-year intervals and controls for marital status and uses actual wage.

[a]In columns 4 and 5, benefit income (unemployment insurance payments and state pensions) is subtracted from other household income and inserted separately.

Table 1.12: OLS estimates of weekly hours, conditional on working

	(1)	(2)	(3)	(4)	(5)	(6)
	Wives	**Wives**	**Heads**	**Heads**	**Others**	**Others**
Wage (d/h)	-1.677	-1.472	-0.822	-0.616	-0.693	-0.648
	(0.227)***	(0.246)***	(0.105)***	(0.252)**	(0.039)***	(0.038)***
Wage*Poor		-0.958		-0.259		-0.212
		(0.403)**		(0.276)		(0.078)***
Poor W/out Female's Earnings	4.681	11.200	2.192	7.025	-0.288	1.867
	(1.526)***	(3.879)***	(1.394)	(3.392)**	(0.242)	(0.760)**
Other HH Income[a]	1.563	1.373	-0.699	-0.521	0.060	0.067
	(0.460)***	(0.479)***	(0.496)	(0.518)	(0.041)	(0.042)
Other HH Income*Poor		1.698		-0.577		-0.304
		(1.290)		(1.185)		(0.204)
Benefit Income[a]	-0.836	-0.115	-4.296	-1.922	-0.074	0.071
	(1.214)	(1.448)	(0.986)***	(1.294)	(0.189)	(0.204)
Benefit Income*Poor		-2.168		-5.113		-0.699
		(2.589)		(1.880)***		(0.475)
Children Ages 0-5	-2.569	-2.711	-2.266	-2.139	-0.017	-0.012
	(0.445)***	(0.449)***	(0.493)***	(0.490)***	(0.072)	(0.072)
Older Child Present	1.384	1.365	2.086	2.644	0.318	0.308
	(1.781)	(1.751)	(3.022)	(3.021)	(0.317)	(0.319)
Additional Adult Female Present	-0.974	-1.293	0.491	0.999	-0.086	-0.027
	(1.237)	(1.232)	(0.959)	(1.144)	(0.719)	(0.717)
Additional Adult Male Present	-3.935	-3.746	-2.796	-2.451	-0.221	-0.187
	(1.432)***	(1.422)***	(1.103)**	(1.157)**	(0.167)	(0.167)
Male Head Unemployed	3.123	4.115			0.114	0.002
	(1.587)**	(1.719)**			(0.358)	(0.373)
Constant	46.711	46.307	39.508	36.047	39.191	38.694
	(4.007)***	(4.116)***	(2.315)***	(3.428)***	(4.886)***	(4.889)***
Observations	1023	1023	1320	1320	6536	6536
R-Squared	0.24	0.25	0.20	0.21	0.10	0.10
	Robust standard errors in parentheses					
	* significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Includes controls for age using a series of dummy variables denoting age group in five-year intervals and controls for marital status and uses actual wage.

[a]In columns 4 and 5, benefit income (unemployment insurance payments and state pensions) is subtracted from other household income and inserted separately.

further specifications in columns 3-5, which add variables relating to household composition and separate benefit income from other sources of household income, the relationship between hours worked per week and other household income becomes positive. Interestingly, the interaction between other household income and coming from a poor household, shown in columns 3 and 6, is negative and significant -- so higher levels of household income were associated with shorter hours among women from poor households and slightly longer hours among women from households safely above the poverty line. The former point is certainly consistent with a target-income model of labor supply, but the latter is difficult to explain.[31] The small magnitude of the coefficient on other household income, whichever the sign, seems to suggest that income level had its primary effects on labor force participation, mainly acting to push and pull female workers in and out of the labor force, while own wage rates had the primary effect on determining hours of work once a female worker was in the labor force. The interaction between own wage and coming from a poor household, shown in columns 3 and 6 of Table 1.11, was negative but not significant among the sample as a whole, but it does appear (in columns 2 and 6 of Table 1.12) that wives and adult daughters from poor households did have more elastic negative responses to their own wages, as expected.

A final note about Table 1.12 concerns the results for single women, reported in columns 5 and 6. Although the relationship between wages and hours is negative and significant for this group as well, none of the other variables appears to explain anything about their hours decision

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[31] It is also especially strong among married women, as Table 12 reveals, which is even more surprising. Regressions which substitute husbands' wages for other household income also get the curious result that married women's hours are positively related to their husband's wage rates, while their probability of participating in the labor market is negatively related (as expected). Households with working wives that were above the poverty line were also more likely to have additional secondary workers in the labor market and had more workers per household on average, so this result might be picking up a positive association among household work ethic and household income.

once in the labor market. As was discussed in section II, their high labor force participation rates made them the group of women whose labor supply behavior could least plausibly be explained by a target-income model. It may be, in their case, that the negative relationship between wages and hours is more the result of a structural shift in the economy, in which high-wage jobs in the clerical and professional sectors were associated with shorter hours and lower-wage jobs in the manufacturing and clothing sectors were associated with longer workweeks in factories and workshops. However, adding a control for the sector of employment to the models estimated in columns 5 and 6 of Table 1.12 does not dampen the negative wage elasticity (in fact it strengthens it), and, as we will see in the next section, coming from a poor household did increase the probability that a young single woman entered the labor force.

2. Labor Force Participation Results

The Probit model estimates the probability that any given female participates in the labor market. The dependent variable equals 1 if the female in question participates in the labor market and 0 if not. The general form of the estimated regression is:

$$\text{Prob}(\text{Participates}=1)=\Phi(\beta_0 + \beta_1 W + \beta_2 I + \delta' X + \varepsilon)$$

where, as in the hours model, W is the hourly wage (weekly earnings divided by weekly hours), I represents household income excluding the earnings of the female worker, and X includes the variables discussed above -- an indicator for whether the household would have fallen below the poverty line without secondary earnings, the number of young children present, and dummy

variables indicating the unemployment of the male household head and the presence of potential alternative secondary workers -- as well as controls for age and marital status.

Table 1.13 presents the results of the most parsimonious model, which includes only the wage, other household income and controls for age and marital status. As expected, the wage does not have a significant effect on the probability of participating in the labor market -- this is consistent with results from previous historical studies and lends support to the idea that at this time, women were pushed into the labor market by low household income rather than pulled in by high wages. The effect of other household income is negative and significant, as expected, and corresponds to a marginal effect of -.03, so females were about 3 percentage points less likely to go out to work for every pound (20 shillings) of weekly household income, an income elasticity of about -0.42 at the mean. Using predicted wages for all workers, predicting wages using the Heckman selection correction method and controlling for the borough of residence do not change the basic result.[32]

Further explanatory variables are added in Table 1.14. Women from households that were poor, or would have been without their earnings, were significantly more likely to be in the labor force. The coefficient in column 2 corresponds to a marginal effect of 0.14, suggesting that women from poor households were 14 percentage points more likely to be in the labor force. The receipt of benefit income had a negative effect on labor force participation as well as on hours, and, again, was especially strong among poor women. Young children had a negative effect on labor force participation, while, curiously, the presence of alternative secondary earners appears to have had a positive effect. It is possible that these variables represent the presence of

[32] Although interestingly, using predicted or Heckman corrected wages generate a just-significant negative relationship between wages and participation. This indicates that participation rates were relatively high among women who are predicted to have low wages.

alternative care-givers for younger children, or that they stand in as a measure of total household size and that, at a given level of household income, extra adults would generate extra needs as well as represent extra earners. Columns 5 and 6 present an interesting result pertaining to the unemployment of the male household head -- it is not significant when the poverty indicator is included in the model, but is highly significant when poverty is removed. One appears to stand in for the other -- which makes sense, since poverty and unemployment were very highly correlated during the interwar period.

Table 1.13: Probit Estimation of Female Labor Force Participation

	(1)	(2)	(3)	(4)
Wage Specification	**Actual**	**Predicted**	**Heckman**	**Actual**
Wage (d/h)	-0.00002	-0.022	-0.037	0.002
	(0.006)	(0.011)*	(0.021)*	(0.006)
Other HH Income	-0.125	-0.124	-0.124	-0.127
	(0.005)***	(0.005)***	(0.005)***	(0.006)***
Borough Controls	N	N	N	Y
Constant	-0.324	-0.150	0.084	-0.377
	(0.077)***	(0.106)	(0.237)	(0.104)***
Observations	28836	28836	28836	28836
	Robust standard errors in parentheses			
	* significant at 10%; ** significant at 5%; *** significant at 1%			

Note: Dependent variable =1 if the woman works and =0 if not. Includes controls for age using a series of dummy variables denoting age group in five-year intervals. Women who were unemployed in the sample week or otherwise have missing earnings are excluded (315 in total). Wages are predicted for women not in the labor force using the wage equation described in the text.

Actual wages used for those women with wage observations, predicted wages used for women not in the labor force.

Predicted wages obtained from wage equation explained in text.

Heckman wage is predicted using the Heckman selection correction technique; the first stage probit for being observed in the labor force included as explanatory variables other household income, number of young children present and whether the male household head was unemployed, along with controls for age and marital status. The wage equation included dummy variables for age group, marital status, borough of residence, and birthplace.

Table 1.14: Probit Estimation of Female Labor Force Participation (all females)

	(1)	(2)	(3)	(4)	(5)	(6)
Wage (d/h)	-0.00002	0.001	-0.0005	-0.001	-0.001	-0.0005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Poor W/out Female's Earnings		0.726	0.747	1.510	0.818	
		(0.032)***	(0.032)***	(0.055)***	(0.035)***	
Other HH Income[a]	-0.125	-0.052	-0.052	-0.030	-0.072	-0.149
	(0.005)***	(0.006)***	(0.006)***	(0.006)***	(0.007)***	(0.007)***
Other HH Income*Poor				-0.466		
				(0.028)***		
Benefit Income[a]			-0.216	-0.094	-0.263	-0.350
			(0.026)***	(0.031)***	(0.029)***	(0.029)***
Benefit Income*Poor				-0.216		
				(0.026)***		
Children Ages 0-5					-0.452	-0.394
					(0.031)***	(0.031)***
Older Child Present					0.180	0.228
					(0.050)***	(0.048)***
Additional Adult Female Present					0.189	0.179
					(0.031)***	(0.031)***
Additional Adult Male Present					0.105	0.146
					(0.028)***	(0.028)***
Male Head Unemployed					0.083	0.398
					(0.060)	(0.059)***
Constant	-0.324	-0.741	-0.651	-0.807	-0.810	-0.388
	(0.077)***	(0.078)***	(0.080)***	(0.083)***	(0.083)***	(0.083)***
Observations	28836	28836	28836	28836	28836	28836
	Robust standard errors in parentheses					
	* significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Dependent variable =1 if the woman works and =0 if not. Includes controls for age using a series of dummy variables denoting age group in five-year intervals. Women who were unemployed in the sample week or otherwise have missing earnings are excluded (315 in total). Wages are predicted for women not in the labor force using the wage equation described in the text.

[a]In columns 3-6, benefit income (unemployment insurance payments and state pensions) is subtracted from other household income and inserted separately.

The models presented in Table 1.14's columns 5 and 6 are repeated separately for wives, household heads and other females in Table 1.15. Household heads were the most responsive to poverty (a marginal effect of 31 percentage points more likely to be in the labor force) as well as

Table 1.15: Probit Estimation of Female Labor Force Participation

	(1)	(2)	(3)	(4)	(5)	(6)
	Wives	**Wives**	**Heads**	**Heads**	**Others**	**Others**
Wage (d/h)	-0.017	-0.015	0.017	0.019	-0.001	-0.002
	(0.019)	(0.019)	(0.012)	(0.012)	(0.005)	(0.005)
Poor W/out Female's Earnings	0.423	0.891	1.090	1.855	0.468	0.857
	(0.057)***	(0.111)***	(0.070)***	(0.100)***	(0.061)***	(0.107)***
Other HH Income[a]	-0.220	-0.196	-0.167	-0.136	-0.014	-0.009
	(0.019)***	(0.019)***	(0.026)***	(0.024)***	(0.010)	(0.010)
Other HH Income*Poor		-0.232		-0.699		-0.223
		(0.059)***		(0.072)***		(0.044)***
Benefit Income[a]	-0.326	-0.175	-0.675	-0.483	-0.035	-0.039
	(0.061)***	(0.067)***	(0.066)***	(0.069)***	(0.043)	(0.047)
Benefit Income*Poor		-0.521		-0.906		-0.138
		(0.100)***		(0.143)***		(0.105)
Children Ages 0-5	-0.424	-0.415	-0.313	-0.277	-0.278	-0.254
	(0.044)***	(0.044)***	(0.161)*	(0.179)	(0.067)***	(0.067)***
Older Child Present	0.079	0.098	-0.903	-0.716	0.336	0.354
	(0.069)	(0.069)	(0.276)***	(0.297)**	(0.110)***	(0.110)***
Additional Adult Female Present	0.134	0.125	0.219	0.411	1.000	1.019
	(0.046)***	(0.046)***	(0.070)***	(0.073)***	(0.076)***	(0.077)***
Additional Adult Male Present	0.229	0.210	0.059	0.178	0.043	0.054
	(0.046)***	(0.047)***	(0.081)	(0.080)**	(0.041)	(0.041)
Male Head Unemployed	0.058	0.031			0.016	-0.023
	(0.078)	(0.079)			(0.088)	(0.089)
Constant	-1.388	-1.533	-1.415	-1.737	-2.759	-2.829
	(0.194)***	(0.196)***	(0.134)***	(0.142)***	(0.178)***	(0.181)***
Observations	16841	16841	3452	3452	8543	8543
	Robust standard errors in parentheses					
	* significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Dependent variable =1 if the woman works and =0 if not. Includes controls for age using a series of dummy variables denoting age group in five-year intervals. Women who were unemployed in the sample week or otherwise have missing earnings are excluded (315 in total). Wages are predicted for women not in the labor force using the wage equation described in the text.

[a]Benefit income (unemployment insurance payments and state pensions) is subtracted from other household income and inserted separately.

to other household income levels and to benefit income. Single women from households above the poverty line appear not to have been sensitive to household income level in their labor force participation decisions, but those from poor households were more likely to be in the labor force and were responsive to low household income. Interestingly, the number of young children had a negative effect on the labor force participation of young single women as well as married women -- this lends support to the idea that older daughters still living at home would have been of high value assisting in household work as well as in market work. Where an older child (but under the working age of 14) was also present to help, the adult daughter was again more likely to enter the labor market.

The final set of results, presented in Tables 1.16 and 1.17, concern the effect of the depression on labor force participation. In about two-thirds of cases, the survey recorded the date of the interview. These were spread out across 1928-1932, though concentrated in 1929 and 1930 and not randomly distributed geographically. The survey was mainly undertaken east to west, so from poorer boroughs to richer. Female labor force participation rates were generally higher in the poorer eastern boroughs, so since the depression hit the UK quite suddenly in 1930 (though its effects were not nearly as severe as in the US), as the survey moved west, this would make discerning any effect on labor force participation rates very difficult. However, a number of boroughs were surveyed in more than one year (the most common being division being between 1929 and 1930). This provides a good source of variation, since there is no reason to believe that labor force participation rates would have been different within the same borough in 1929 and 1930 for any reason other than as a reaction to the depression, which overwhelmingly impacted male unemployment rates. Thus adding an indicator for whether the household was interviewed

Table 1.16: Probit Estimation of Female Labor Force Participation (all females)

	(1)	(2)	(3)	(4)	(5)	(6)
	All	**All**	**Year Known**	**Year Known**	**Year Known**	**Year Known**
Wage (d/h)	0.000	0.002	-0.020	-0.022	-0.020	-0.020
	(0.006)	(0.006)	(0.010)**	(0.009)**	(0.010)**	(0.010)**
Other HH Income[a]	-0.149	-0.152	-0.146	-0.144	-0.146	-0.147
	(0.007)***	(0.007)***	(0.009)***	(0.008)***	(0.009)***	(0.009)***
Benefit Income[a]	-0.350	-0.352	-0.326	-0.329	-0.326	-0.330
	(0.029)***	(0.029)***	(0.037)***	(0.037)***	(0.037)***	(0.037)***
Children Ages 0-5	-0.394	-0.408	-0.429	-0.402	-0.429	-0.429
	(0.031)***	(0.031)***	(0.040)***	(0.040)***	(0.040)***	(0.040)***
Older Child Present	0.228	0.231	0.242	0.230	0.246	0.249
	(0.048)***	(0.048)***	(0.062)***	(0.061)***	(0.062)***	(0.062)***
Additional Adult Female Present	0.179	0.191	0.227	0.220	0.227	0.229
	(0.031)***	(0.031)***	(0.039)***	(0.038)***	(0.039)***	(0.039)***
Additional Adult Male Present	0.146	0.161	0.167	0.171	0.168	0.170
	(0.028)***	(0.028)***	(0.036)***	(0.035)***	(0.036)***	(0.036)***
Male Head Unemployed	0.398	0.410	0.379	0.367	0.377	0.205
	(0.059)***	(0.059)***	(0.077)***	(0.076)***	(0.077)***	(0.119)*
Year 1930-2[b]				-0.158	0.302	0.289
				(0.031)***	(0.142)**	(0.143)**
Unemp*1930-2[b]						0.259
						(0.140)*
Borough Controls	N	Y	Y	N	Y	Y
Constant	-0.388	-0.450	-0.410	-0.184	-0.711	-0.702
	(0.083)***	(0.108)***	(0.133)***	(0.112)	(0.194)***	(0.194)***
Observations	28836	28836	17434	17434	17434	17434
	Robust standard errors in parentheses					
	* significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Dependent variable =1 if the woman works and =0 if not. Includes controls for age using a series of dummy variables denoting age group in five-year intervals. Women who were unemployed in the sample week or otherwise have missing earnings are excluded (315 in total). Wages are predicted for women not in the labor force using the wage equation described in the text.

[a]Benefit income (unemployment insurance payments and state pensions) is subtracted from other household income and inserted separately.

[b]Year 1930-2 is a dummy variable for whether the year was 1930 or after (as compared to 1928 and 1929). Unemp*1930-2 is an interaction between whether the household had an unemployed male head and the year being 1930 or after.

Table 1.17: Probit Estimation of Female Labor Force Participation

	(1)	(2)	(3)	(4)
	Wives	**Wives**	**Heads**	**Others**
Wage (d/h)	0.002	0.003	-0.037	-0.016
	(0.024)	(0.024)	(0.020)*	(0.007)**
Other HH Income[a]	-0.310	-0.312	-0.372	-0.054
	(0.024)***	(0.024)***	(0.039)***	(0.011)***
Benefit Income[a]	-0.337	-0.355	-0.922	-0.054
	(0.073)***	(0.074)***	(0.084)***	(0.057)
Children Ages 0-5	-0.415	-0.416	-0.335	-0.268
	(0.056)***	(0.056)***	(0.211)	(0.088)***
Older Child Present	0.098	0.101	-0.575	0.358
	(0.084)	(0.084)	(0.365)	(0.144)**
Additional Adult Female Present	0.199	0.205	0.266	1.055
	(0.059)***	(0.059)***	(0.092)***	(0.103)***
Additional Adult Male Present	0.271	0.272	0.167	0.105
	(0.059)***	(0.059)***	(0.106)	(0.055)*
Male Head Unemployed	0.079	-0.176		0.118
	(0.100)	(0.146)		(0.120)
Year 1930-2[b]	0.724	0.687	0.627	0.003
	(0.329)**	(0.329)**	(0.186)***	(0.256)
Unemp*1930-2[b]		0.396		
		(0.158)**		
Borough Controls	Y	Y	Y	Y
Constant	-2.275	-2.242	-0.449	-2.464
	(0.433)***	(0.432)***	(0.305)	(0.355)***
Observations	10334	10334	1964	5111
	Robust standard errors in parentheses			
	* significant at 10%; ** significant at 5%; *** significant at 1%			

Note: Dependent variable =1 if the woman works and =0 if not. Includes controls for age using a series of dummy variables denoting age group in five-year intervals. Women who were unemployed in the sample week or otherwise have missing earnings are excluded (315 in total). Wages are predicted for women not in the labor force using the wage equation described in the text.

[a]Benefit income (unemployment insurance payments and state pensions) is subtracted from other household income and inserted separately.

[b]Year 1930-2 is a dummy variable for whether the year was 1930 or after (as compared to 1928 and 1929). Unemp*1930-2 is an interaction between whether the household had an unemployed male head and the year being 1930 or after.

in 1930 or after, along with borough controls, exploits within-borough variation in interview timing to identify any effect of the depression on female labor force participation rates. Columns 1 and 2 of Table 1.16 show a model of labor force participation for the whole sample, with and without borough controls. Comparison of column 2 with column 3 indicates that narrowing the sample to those households with known interview date does not alter the basic results.[33] In column 4, the variable for post-1930 is entered with no borough controls -- its negative coefficient here picks up the lower labor force participation rates in the western boroughs compared to the eastern. However, once borough is controlled for, as in column 5, it does appear that female labor force participation rates were higher in 1930 and after than before within the same borough. Column 6 interacts the year effect with the unemployment of the male household head -- the added-worker effect was stronger in 1930-2 than before. This is consistent with a story in which the depression increased women's labor force participation rates through a response to male unemployment. Table 1.17 reveals that these effects operated overwhelmingly through married women -- wives responded to their husband's increased unemployment after 1930. Female household heads were also more likely to be in the labor force after 1930, possibly a response to the unemployment of another family member.

V. Conclusion

My results are generally consistent with a model in which female workers served primarily as secondary workers in interwar households, entering the labor force when other household income was low and working to make up for its insufficiency. The labor force participation decision appears to have been much more strongly related to household income level than to own

[33] With the notable exception of the own-wage effect, which increases in magnitude and statistical significance, in the negative direction. It is not immediately clear what sort of bias in the subset of the data where the year is known would cause this, so this point is in need of further investigation.

wages, and women from households that would have been below a relatively spartan poverty line without their earnings were much more likely to be in the labor force. Once in the labor force, however, the hours decisions of working women appear to have been more strongly related to the wage level than to household income, and the relationship between the wage and hours worked was negative. Women from poor households worked longer hours and were more sensitive to other household income, but all women appear to have increased hours in response to low wages and reduced them, presumably in order to spend more time in domestic work, in response to higher wages. Married women exhibited especially large negative wage elasticities with respect to hours, appear to have been able to increase weekly hours in response to the unemployment of their husbands, and also were more likely to be acting as added workers after the depression hit Britain in 1930. Female household heads were most responsive to poverty in their labor force participation decisions, and were also most responsive to the level of benefit income received on both the extensive and the intensive margins. It appears that widows' and orphans' and old age pensions, which were meant to ease the burden of old and female headed households, were effective in reducing the labor supply of widowed women. Finally, young single women appear to have been the least responsive to household characteristics in their labor supply decisions, but there is evidence that they were also more likely to be in the labor force if household income was insufficient without their earnings.

While there has long been evidence of a negative relationship between hours and wages among the working poor in developing countries, this paper provides the first evidence that this was the case among female secondary workers in the industrialized world in the early twentieth century. The finding suggests that, on the hours as well as on the participation margin, the female

labor supply function changes over time and with the process of economic growth -- that rising wages were not merely slow to draw women into the labor force in the early twentieth century, but that they might actually have first reduced the labor supply of marginal workers in low-wage work, before eventually drawing more highly-skilled women into higher-wage work. That this negative relationship was evident among female workers, who were mostly engaged in relatively low-skilled and low-wage work, within what was, at the time, one of the highest-wage labor markets in the world, also suggests that this might be a feature more broadly common to low-wage labor markets -- definitely a suggestion worthy of further exploration.

Table 1.A1: Descriptive Statistics for NSLLL Sample Used in Probit Estimation

Variable	Obs	Mean	Std. Dev.	Min	Max
Dep. Var.	28836	0.33	0.47	0	1
Age Unknown	28836	0.13	0.34	0	1
Age 14-15	28836	0.05	0.21	0	1
Age 16-17	28836	0.05	0.21	0	1
Age 18-19	28836	0.05	0.21	0	1
Age 20-24	28836	0.10	0.30	0	1
Age 25-29	28836	0.09	0.29	0	1
Age 30-34	28836	0.10	0.29	0	1
Age 35-39	28836	0.09	0.28	0	1
Age 49-44	28836	0.08	0.27	0	1
Age 45-49	28836	0.08	0.26	0	1
Age 50-54	28836	0.06	0.24	0	1
Age 55-64	28836	0.07	0.26	0	1
Children 0-5	28836	0.28	0.60	0	4
Children 6-13	28836	0.74	1.07	0	7
Young Child*Old Child	28836	0.13	0.34	0	1
Male Head Unemployed	28836	0.05	0.22	0	1
Other Females	28836	0.77	1.0	0	6
Other HH Income	28836	3.75	2.13	0	30.5
Other HH Earnings	28836	3.5	2.25	0	30
Other HH Earnings*Poor	28836	0.17	0.58	0	8.1
Total Benefit Income	28836	0.22	0.48	0	5.75
Total Benefits*Poor	28836	0.07	0.29	0	3.20
Wife	28836	0.58	0.49	0	1
Female HH Head	28836	0.12	0.32	0	1
Poor Without Fem's Earnings	28836	0.17	0.37	0	1
Wage (d/h)	28836	8.50	2.43	1.11	50.35

Table 1.A2: Descriptive Statistics of NSLLL Sample Used in Hours Estimation

Variable	Obs	Mean	Std. Dev.	Min	Max
Dep. Var.: Weekly Hours	8879	43.3	9.93	2	84
Age Unknown	8879	0.078	0.269	0	1
Age 14-15	8879	0.092	0.289	0	1
Age 16-17	8879	0.135	0.342	0	1
Age 18-19	8879	0.133	0.3	0	1
Age 20-24	8879	0.213	0.409	0	1
Age 25-29	8879	0.090	0.287	0	1
Age 30-34	8879	0.051	0.219	0	1
Age 35-39	8879	0.047	0.211	0	1
Age 49-44	8879	0.041	0.198	0	1
Age 45-49	8879	0.037	0.190	0	1
Age 50-54	8879	0.032	0.177	0	1
Age 55-64	8879	0.035	0.184	0	1
Total Children	8879	0.90	1.34	0	8
Young Child*Old Child	8879	0.092	0.289	0	1
Other Females	8879	1.4	1.08	0	6
Male Head Unemployed	8879	0.060	0.238	0	1
Other HH Earnings	8879	3.5	2.46	0	19.1
Other HH Earnings*Poor	8879	0.26	0.706	0	8.10
Total Benefit Income	8879	0.224	0.466	0	3.5
Total Benefits*Poor	8879	0.091	0.297	0	2.5
Poor Without Fem's Earnings	8879	0.115	0	0	1
Wage (d/h)	8879	0.031	0.174	0	1

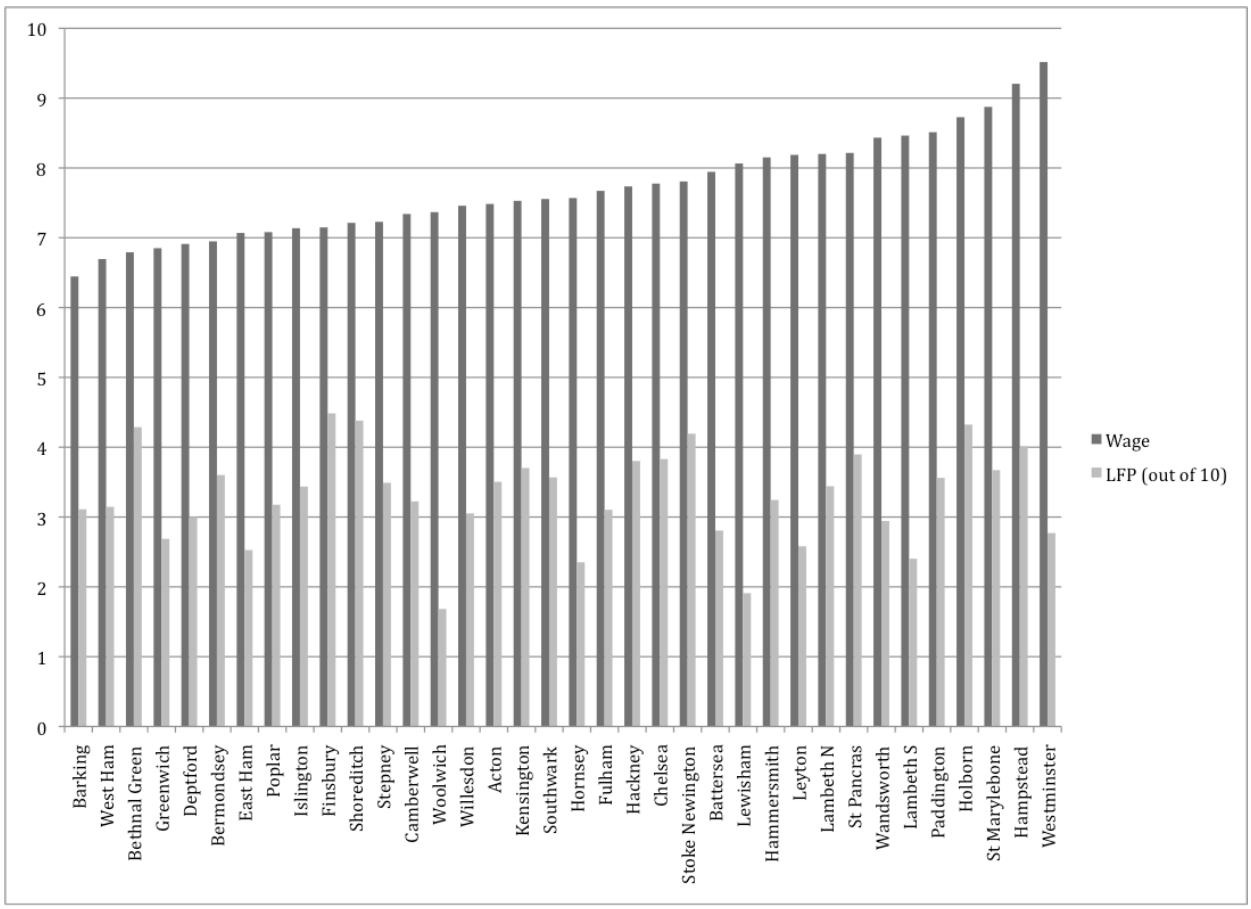

Figure 1.A1: Labor Force Participation Rates and Average Wages by Borough in the NSLLL

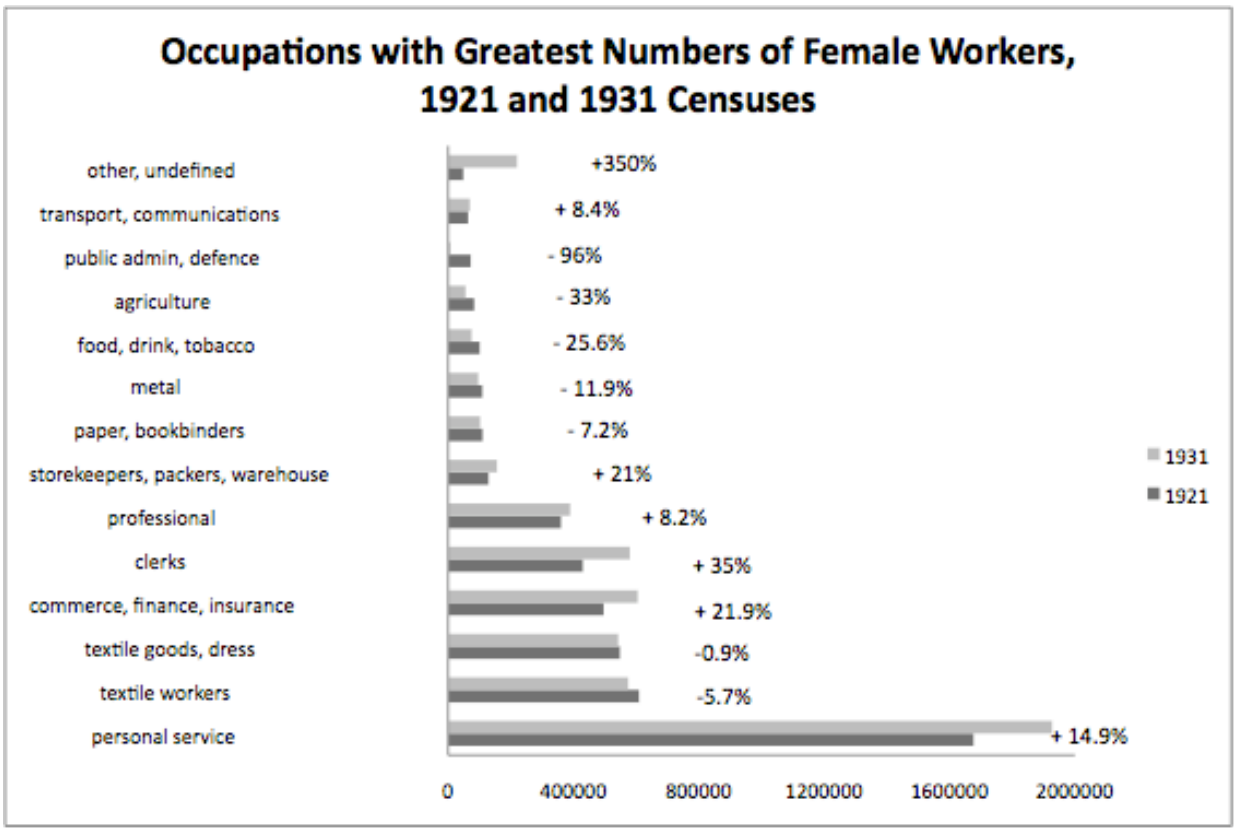

Figure 1.A2: Distribution of Female Workers in their Main Industries of Employment, 1921-31

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CHAPTER 2

"NOT MUCH USE IN DISLIKING IT": LABOR SUPPLY AMONG FEMALE HOME WORKERS IN LONDON, 1897-1908

Abstract

This paper uses newly compiled data from two surveys of female home workers undertaken by the Women's Industrial Council in London in 1897 and 1907 to investigate various issues related to their labor supply. The reports detail the occupations, average weekly earnings and hours, marital status, and household size, composition and total income of approximately 850 female home workers, offering a unique, and as yet unused, opportunity to explore labor supply behavior among the lowest-paid workers in the early twentieth century. Analysis of the data reveals that the female home workers who were surveyed were drawn overwhelmingly from poor households. Most were married or widowed, and the majority of married workers reported that their husbands were out of work, sick, disabled, or in casual or irregular work. Weekly wages and hours of work varied considerably by industry, but averaged about 7-9s. and 40-45 hours per week, with many workers reporting the desire for more work. The correlation between hours of work (daily and weekly) and hourly wages was negative and significant, suggesting that those who earned the lowest hourly wages needed to work longer hours in order to make a living. The reports also contain limited information about prior training and human capital accumulation, and I find evidence that wages were positively related to previous formal training in the form of an apprenticeship. I also find that the wives and daughters of men who were out of the labor force due to unemployment or illness tended to work longer hours at lower wages, and that having a household member who was sick, disabled or out of work exerted downward pressure on a female worker's wage rate.

I. Introduction

Poverty among the working classes was a major concern of politicians and reformers in late-nineteenth and early-twentieth century Britain, and Charles Booth's pioneering survey of London in the 1880s drew particular attention to the problem of "sweated" labor in London's East End. Concern over the issue led to the formation of the 1888 House of Lords Select Committee on the Sweating System which, after encountering great difficulty in even defining the term, determined that sweating had three main characteristics: "1. a rate of wages inadequate to the necessities of the worker or disproportionate to the work done; 2. excessive hours of labour; 3. an insanitary state of the houses in which work is carried on."[34] Sweated labor was immediately, and overwhelmingly, associated with home work and with women's work, though by no means was all home work sweated work or all sweated work undertaken by women or in the home. Numerous investigations of sweating and of women workers came to the conclusion voiced by Clementina Black in her 1907 work Sweated Industry and the Minimum Wage that "probably the most completely wretched workers in our country may be found among those who ply their toil in their own poor homes" (Black 1907, 2).

The attention that social surveys undertaken by Booth, Seebohm Rowntree and Arthur Bowley and A.R. Burnett-Hurst drew to the problem of working-class poverty was instrumental in the passage of the Liberal Welfare Reforms between 1906 and 1914.[35] The Liberal Welfare Reforms established free meals, school medical inspections and medical treatment for needy children, old age pensions, compulsory systems of health and unemployment insurance and,

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[34] Fifth and Final Report of the House of Lords Select Committee on the Sweating System (PP 1890 XVII, xlii).

[35] Booth's survey was of London in the late 1880s, Rowntree's of York in 1899 and Bowley and Burnett-Hurst's of Northampton, Warrington, Reading and Stanley in 1912-13.

most notably with regard to female workers, the 1909 Trade Boards Act established boards to set minimum wages in four industries considered to be centers of low-wage, "sweated" labor.[36] The four trades singled out -- tailoring, box making, shirt making and chain making -- predominantly employed women, and in 1913 the Board of Trade estimated that approximately 200,000 workers, of whom 70% were female, had been affected by the 1909 Act.[37] Various political pressure groups, including the Women's Industrial Council, the Women's Co-operative Guild, the Women's Labour League and the Fabian Women's Group, beginning in the 1890s, had worked to produce and publicize numerous descriptions of working conditions and surveys of female workers in very low-wage trades. Their efforts culminated in the staging of the 1906 Daily News Sweated Industries Exhibition, which put actual workers engaged in sweated trades on display, and led almost directly to the adoption of the Trade Boards Act in 1909.[38]

This paper uses data newly compiled from two surveys of female home workers undertaken by the Women's Industrial Council in London in 1897 and 1907 to investigate various issues related to their labor supply.[39] Though they were the subject of much public outcry, and served as catalyst to a major social policy change, home workers, in this period and others, have largely stayed under the statistical radar. They were difficult to count, naturally excluded from regular wage surveys in factories and workshops, and most likely undercounted in

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[36] See Boyer (2004, 310-11) for a more extensive discussion of the Liberal Welfare Reforms.

[37] Figures cited from Board of Trade *Memoranda in Reference to the Working of the Trade Boards Act* in Abbott (1915, 269).

[38] The women's groups are discussed in the introduction to Black (1915, i-xv), while the connection between the Sweated Industries Exhibition and the passage of the Trade Boards Act is discussed at length in Blackburn (2007, 91-117).

[39] The second survey was undertaken in 1907, but the results published in 1908. From here on, I will generally reference the report date of 1908, but the survey was conducted exactly ten years after the first.

the census.[40] Who were they? How long were their hours, and how low their wages? What was the relationship between wages and hours among this group? What is it possible to conclude about their reasons for being in the labor force, and in home work in particular? Tabulated results of the two surveys were published by the Women's Industrial Council in reports titled Home Industries of Women in London (HIWL) in 1897 and 1908, and while the number of observations is relatively small -- 404 in 1897 and 446 in 1908 -- and it is unfortunately impossible to say how representative the samples were of the population of London home workers at the time, the reports still offer a unique, and as yet unused, opportunity to answer these types of questions.[41] In addition to detailing the occupation, relevant piece rates, and average earnings and hours (daily or weekly) of each worker, the survey records include sometimes-extensive notes on her marital status, living situation and working conditions, the presence of children, the presence or absence of a male wage-earner, the earnings of other family members, and other sources of income, including poor relief.

Most prior historical work on female labor supply in the nineteenth and early twentieth centuries has been limited, by data constraints, to focusing on the labor force participation question. Data on hours worked has been difficult to come by. The only other study of a similar period that I know of that has been able to relate wages to hours is Costa (2000), which finds a negative relationship between the hourly wage and daily hours of work among both male and

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[40] See the three main historical studies of home workers and women in the sweated trade, Bythell (1978), Schmiechen (1984) and Morris (1986). Bythell (p.147) reports the 1901 Census count of women working at home as 278,000, about 6.7% of the total female work force in that year, and Schmiechen (p.196) reports that the 1901 Census recorded about 44,000 female home workers in the London clothing trades.

[41] Unfortunately, neither report gives much detail about the reasons for the surveys or how they were undertaken, simply presenting summary tables of the results. According to Black (1915, ii), the Women's Industrial Council was organized largely to collect and publish "trustworthy information about the condition of women's work."

female workers in the U.S. in the 1890s.[42] For male workers, this relationship held across wage decile, within wage deciles, and within industry and occupation groups (Costa, 169-70).[43] Costa's data come from surveys undertaken by State Bureaus of Labor Statistics, and while it appears that workers gave some information about personal and household characteristics, the HIWL investigations are noteworthy for having been conducted at the household level. While home workers were obviously a very select group, and in no way representative of the broader female work force, they do boast a very high proportion of married women and widows compared to previous sources, such as the BLS studies, which focused on factory workers. The story of the late nineteenth century factory girl has been relatively well written, but very little is known about the small minority of married women who did enter the labor force. Thus the HIWL surveys offer the opportunity to examine in greater detail one strategy used by working wives around the turn of the century to combine earning with domestic duties -- home industry.

Like Costa's study -- and subject to many of the same data limitations that make estimating a well-defined labor supply curve difficult -- I find a robust negative relationship between hours, both daily and weekly, and the hourly wage rate. Contemporaries of the studies, and their investigators, frequently repeated the observation that it was typically the least needy wives and daughters of men in work who earned the highest wages and worked the fewest hours, while those women whose families depended on their work were often found working long hours in low-wage work. This finding is broadly consistent with many empirical studies of labor supply among the working poor in developing countries, in which there has long been evidence

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[42] Costa (2000, 164). Her data come from various state bureaus of labor statistics, and controls include the worker's age, whether the worker had any dependents, a dummy for foreign birth, and fixed effects for the state and year of the report. She stresses that this is not a well-defined labor supply curve.

[43] Unfortunately the data on female workers were too limited to be broken down in this way.

of a negative labor supply elasticity at low wage levels -- workers may need to work longer hours at lower wages in order to meet a minimum standard of income for the household.[44] Costa also postulates that a labor supply response in which income effects were larger than substitution effects could be one possible explanation for the observed negative relationship in her study, suggesting that "in the past workers may have responded to wage increases by buying a shorter workday rather than by increasing their hours of work" (Costa, 171).

Recent work has suggested that this negative relationship between hours and wages might hold more generally among workers in low-wage labor markets, constituting the bottom portion of a labor supply curve that turns positive at higher wage levels.[45] With female labor in particular, this type of model seems most plausible where workers act mainly as secondary workers, fitting work around significant household duties; two characteristics which were certainly true, almost definitionally, of female home workers in this period. The type of work that was being done in homes in 1897 and 1908 -- small manufactures and sewing work that could be made or performed in the home, rather than with factory machinery -- also probably had most in common with the types of work done by women in parts of the developing world today. Thus the finding that the labor supply behavior of women at this time appears to have had more in common with secondary workers in the developing world than with female workers in today's modern economies should perhaps not be surprising.

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[44] Dessing (2002) and Sharif (2003) both provide extensive overviews of this literature, while Pencavel (1986) and Killingsworth and Heckman (1986) cite instances of similar findings among both male and female workers in modern Western economies.

[45] Prasch (2000), Dessing (2002) and Sharif (2003) use different methodologies to derive similar curved labor supply functions.

II. Female Labor Supply and Home Work

The 1908 Select Committee on Home Work divided women who worked at home into three categories:

1) Single women, widows and wives deserted or separated from their husbands, and wives whose husbands are ill or unable to work. These are usually regular workers. They vary much in age, skill and efficiency, and in the class of work they do, and the amount they are able to earn.
2) Wives who obtain work when their husbands are out of employment. They are more or less casual workers; some of them have not had any real training, and are unskilled. They have to take such work as is available at the moment, and such terms as are offered to them.
3) Wives and daughters of men in regular employment, who wish to increase the family income. They usually select pleasant work and do not ordinarily work very long hours.[46]

Contemporary commenters frequently discussed the home working population in terms that divided them into those who relied on the income and those who did not, and made much of the seemingly paradoxical observation that it was often the least needy home workers who earned the most. The reasoning given for this phenomenon was more often couched in terms of relative bargaining power -- workers who needed to support themselves or a family, and had an immediate need for income, were less able to negotiate higher wages or to hold out for better-paid work. Workers who had a husband's or father's earnings to fall back on, however, were able to be choosier about the work they took on, and could afford to turn down badly paid work. Clementina Black and Adele Meyer noted of their 1908 investigation into women in the clothing trades that "the highest totals are apt to be made not by women in circumstances of great distress, but by those who are more or less prosperous. The wife of a man who earns 'good money' or the single woman living in comfort with relations, seems more likely herself to make over 10s. than

[46] Select Committee on Home Work Report (PP 1908 VIII, iv).

the woman whose children depend on her earnings or the single woman who lives alone and sews all day long undisturbed" (Meyer and Black, 118). They argue that this phenomenon, "which has been remarked by previous investigators" is not actually very surprising, and that the explanation lies, "we believe, partly in the greater working power of the better fed and comfortably-living human being, and partly in the fact that the comparatively prosperous person can afford to refuse very badly paid work. The woman who has no other resource than her earnings dares not risk offending her employer and is therefore easy to be beaten down" (Meyer and Black, 118).

The idea that women from more prosperous households also might have been more likely to have had formal training in a skilled trade, and thus the ability to command higher wages for more skilled work, was less frequently addressed, but many contemporaries did comment on the lack of skill exhibited by married women and widows who may have been forced to enter a trade for the first time, or to pick an old one up after a long absence. In her chapter on women's work in Booth's survey, Clara Collet also described "married women who, without any previous training, take [home work] up under pressure of want. Theirs is the poorest pay and the most irregular work. Here we find truly 'starvation wages.'"[47] In the introduction to her 1915 *Women in Modern Industry*, B.L. Hutchins commented that, in comparison to male labor, "women's work is subject to considerable interruption, and is contingent on family circumstances, whence it comes about that women may not always need paid work, but when they do they often want it so badly that they are ready to take anything they can get" (Hutchins, xvi).

[47] Collet in Booth (1902, Vol. 4, 258).

The authors of the HIWL reports frequently repeat the observation that the least needy workers appear able to earn the highest wages, and also suggest a corresponding relationship between wages and hours -- better off workers are able to command higher wages, and also have less need to work long hours, while workers with an urgent need to make household income tend to be working longer hours at lower wages. In the introduction to the 1897 report, Black notes that "in going over the whole series of tables it is striking to note that the workers receiving the highest pay are often the wives of men in work, and are not working for very long hours; while it frequently happens that the lowest earnings are those of women depending entirely on their work" and that "it certainly appears from these reports that a considerable proportion of women, who avowedly work for supplementary profits, earn more per hour (sometimes upon the same work at the same rates) than the women who work for daily bread" (1897, 6).[48] She gives several possible explanations for this result, which she appears to have found surprising. The explanations all really refer to differing levels of human capital -- in terms of the training received, skill level, age and health. Widows were often slowed down by age, and health issues could both influence a worker to work at home and slow her down; they suggest that "of spinsters, a certain number have probably failed to marry on account of weak health or physical infirmity; the cripple and the deformed would naturally fall into the ranks of the single" (1897, 6). Workers from more prosperous households, on the other hand, might see health benefits that would make them more productive workers; the report suggests that "it may also be that the better conditions of food and lodging, and the less monotonous life of the more prosperous married woman, conduce to make her a more effective worker" (1897, 6).

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[48] From here on, rather than repeat HIWL every time I cite one of the two reports, I will use the notation (1897, p) and (1908, p) to refer to them.

In the tailoring trade in particular, there was a very clear hierarchy of work in terms of skill level, with women doing the most skilled made-to-measure suit work at the top of the earnings and wage distributions. The 1897 report makes reference to the fact that "the homes where this better class of work is done, are, as a rule, very superior to the others," and suggest that the skill and relative prosperity of these workers ensured that they did not have to take on lower paid work; "the women would speak with contempt of the 'slop' work, and say they could never do 'such stuff'" (1897, 30). They also suggest that those workers engaged in the lowest paid work lacked not only skill but also bargaining power in the market -- "The women do not seem hopeful for better wages; there are always so many eager for the work, bad as it is, that they dare not make much ado in case it should be taken from them, and they are so isolated that combination seems to present insuperable difficulties to them" (1897, 30). The 1908 report contains sporadic but enlightening references to the training received by various workers, and the information on the tailoring trade is relatively complete -- the highest paid workers in skilled suit-making are described as having served years-long apprenticeships and as having paid up to £10 for training, while others learned in months, from a friend or family member, or simply "picked it up" (1908, 101-113). One girl, described as "not very strong," related that she "was taught the trade by another girl, and has not learnt it completely. She cannot do all the best kind of work, and therefore only gets the poorer quality" (1908, 103).

It does seem plausible that, within the sample of home workers, the set of personal and household characteristics that would lead to lower wages could also imply longer work hours, and vice versa for higher wage workers. Where married women, widows or young girls living at home were driven into the labor force by a shortfall in household income, sometimes

temporarily, a lack of experience, skill or familiarity with the labor market might have forced them to take on relatively low paid work. Where attaining a certain level of income was crucial, lower wages would have meant longer hours of work. Normally the advanced age or ill health of a worker might be expected to reduce both the wage rate (via the type of work undertaken, and the speed at which they could work) and the hours dedicated to working but, again, if the worker was supporting herself or other family members, the reduced rate of pay could necessitate longer, not shorter, hours of work. Workers with other sources of support available, as with husbands and fathers who were earning, would both have had greater resources of money and time to devote to seeking out training and better work, and might well have been able to attain a satisfactory level of earnings by devoting fewer hours to work. Healthier, better trained single women and widows would have been able to command higher wages and support themselves, if desired, on fewer hours of work as well, leaving more time to devote to domestic work and possibly even leisure.

There has been very little historical data that allows women's wage rates to be related to their hours of work. The data from the HIWL reports is less than ideal in that it contains only workers, and so nothing can be said about labor force participation (beyond the ability to make some inferences about various workers' reasons for being in the labor market), and it is clearly a very selected group of workers -- among the poorest and lowest-earning, and also clearly with strong ties to the home. But, for these same reasons, a group of female workers who take piece work into the home, fit their work around domestic duties, and act primarily as secondary workers might represent an important stage in the historical development of women's role in the economy, and might have much in common with female workers in parts of the developing

world. Thus the data contained in the reports provides a valuable opportunity to examine how household need, duties and conditions, along with human capital (or a lack thereof), affected the behavior of these workers in a select segment of the labor market.

In the standard labor supply model, the female worker's market wage rate affects her allocation of hours among leisure, the home and the market. An increase in the wage increases the price (opportunity cost in terms of foregone wages) of time spent in home production or leisure, so to the degree that home production can be substituted by wage goods, this substitution effect will lead to an increase in labor supplied to the market, on both the participation and hours margins. On the hours margin, an increase in the wage also generates an increase in income that might lead to a reduction in labor supply. Thus, in general, the labor force participation of married women is thought to be positively related to their own wage offers, but the effect of a higher wage on hours of work is theoretically ambiguous, and depends on whether the income or substitution effect dominates.[49] Other sources of household income are assumed to have a positive effect on the demand for leisure, and thus a negative effect on both labor force participation and hours of work. Historical studies of labor force participation have generally found small and insignificant own-wage elasticities and negative household income effects that are substantially larger than those found for later time periods.[50] The interpretation has been that married women in the past were much more responsive to household income levels than to their own wage rates. Both Goldin (1990, 132-5) and Roberts (1988, 72-3) stress that, when female workers were predominantly employed in undesirable jobs in manufacturing and service, a

[49] The overall effect of the wage on hours is often expressed as the uncompensated wage elasticity, which can be decomposed into its substitution effect -- the compensated wage elasticity -- and its income effect.

[50] Goldin (1990, 132) surveys wage and income elasticities derived from cross-city studies which relate city participation rates to average wage levels and demographic characteristics. Hatton and and Bailey (1988) use an early sample of 1356 households from the NSLLL, about 5% of the full sample.

wife's presence in the labor force was a signal that her husband did not earn enough to support the family. This stigma, along with standards of housekeeping that attached a high value to married women's domestic work, meant that women were typically pushed into the labor force by the low or irregular earnings of their husbands.

Historical studies have, however, typically lacked data about hours of work, so we do not know much about the relationship between wages and hours among those women who were in the labor force. In modern studies of female labor supply, the substitution effect tends to dominate the income effect, and uncompensated wage elasticities tend to be positive. Standard labor supply theory does allow for the supply curve to bend backwards (i.e. for the income effect to dominate), but it is generally assumed that this would occur at higher, rather than lower, wage rates and is rarely observed among female workers (Barzel and MacDonald 1973; Heckman and Killingsworth 1986). In many studies of developing countries, however, the relationship between hours and wages has been found to be negative, especially at low wage rates and among poor secondary workers.[51] While older studies explained this finding by assuming that labor supply curves bent backwards at very low wage rates in underdeveloped agricultural societies, recent models (derived in different ways by Dessing 2002; Prasch 2000; and Sharif 2003) have suggested that this observed negative relationship constitutes a "forward-falling" segment of the labor supply curve, along which poor workers are induced to work longer hours as the wage rate falls in order to keep household income constant at some minimum level.

The implication of models such as Dessing's (2002) for the labor force participation decisions of secondary workers is that they are primarily driven by household income level

[51] See Dessing (2002) and Sharif (2003) for thorough overviews of this literature.

rather than their own wage rates, a prediction that is consistent with the historical findings. Workers driven into the labor market by household need may enter unpleasant work at relatively low wage rates, and, particularly in the case of married women, they are also likely to have continued responsibilities for home production. Just as the household's need for extra earnings would cause a secondary worker to increase hours of work as the wage falls, the household's need for domestic work could provide a strong incentive for that worker to reduce hours of work once basic needs have been met (Dessing 2002, 444). Together, these generate a predicted negative wage elasticity for secondary workers who are working towards some target income level, and particularly for female workers who must combine market work with home production.

Most women in the HIWL data seem to fit the role of secondary worker very clearly, supplementing a husband or father's income, often by entering the labor force during times he is out of work, or by off-setting the irregular earnings of a laborer in casual or uncertain work. The surveys are full of examples like the woman who "works to supplement the husband's wage, which is not quite enough" (1897, 77) and the woman whose "Husband is a labourer earning £1 a week, and as there are 4 children she has to supplement his earnings" (1908, 103). Another whose husband is a casual laborer states that "his work uncertain," and "hers fairly constant" (1897, 67); in another case of the "husband in casual work" the report notes, "wife's earnings needed to keep family in food" (1897, 69). There are plenty of examples also of women who have begun work following the unemployment or fall in wages of their husbands. One woman with seven children "lamented having come down to such a thing as matchbox making" while her husband was out of work "owing to the collapse of the firm he worked for" (1908,

157). In another case, that of a married woman with five children, it is stated that her husband "used to earn more, and since he got less his wife has begun to work" (1908, 131). In a final case, it is clear that the wife frequently needs to work during her husband's spells of unemployment; her husband is in the "'electric line,' but often out of work, when wife has to work almost night and day to keep them. He lost 14 weeks this year before July, and last year they had out-relief for the first time; 5 children." (1908, 107).

Even in cases where a widow or single woman is clearly the only means of support for herself and the family, and therefore acting as the household's primary earner, the impression is that this is by default; they often seem to have been unprepared for the role, and many have difficulty earning enough to survive on. One widow with no poor relief relied on help from her grown children to supplement her own meager earnings; they are "all married, but help her a little or she 'could not live'" (1908, 139). Another widow had to resort to begging; she "had lived in America, but after husband's death came home to old trade. This was the solitary case of begging in Vine Yard" (1897, 71). Of a single woman supporting herself and her mother, the report notes that "the work is close and very badly paid, but she did not complain, only said, 'it is a hard struggle to rub along'" (1897, 79). Many widows appear to have been hampered not only by age or young children, but by long absences from work or a lack of experience; of one widow with several children the investigator notes, "It struck me that she was an unskiful worker and slow; has only done it since her husband's death a few years ago" (1897, 61).

Widows with children, along with married women, faced a significant trade off between work for wages and domestic duties. In some cases, long hours of work seem to have followed household chores; one widow, who must accomplish a certain amount per day in order to support

her children, “has to look after house as well, and can’t always work till afternoon” with the result that she “works very late.” (1897, 21). In many others, housework was simply neglected. Of one married woman with a husband in “poor pay” it is noted that “she has to neglect her home when she has the work” (1897, 67). Of many other homes of widows and married women, notes read “this home was much neglected” (1897, 49), “home and large family of small children much neglected on account of work” (1897, 41), or “says has to neglect everything to earn this 7/-” a week (1897, 57). Though it mainly appears to have been easier for single women to manage housekeeping and work together, there are examples like this single woman, of whom it was stated “room very slovenly, and scattered with bed clothes. Unwashed breakfast things about” (1897, 73).

Where there are mentions of women who have recently given up work, or are planning to, one reason given for doing so is that their housework is suffering. One married woman stated that “she only took up the work because her husband was out of a situation, and thinks she will have to give it up as she cannot do any housework except on Mondays and Saturdays, when she does not take the boxes” (1908, 151). Particularly for married women and widows with children, it seems clear that balancing both was difficult to sustain, and therefore it also seems plausible these workers would have a strong incentive to reduce work hours in order to focus on domestic duties when increases in the rate of pay or other household income allowed. There are several cases in the reports of women visited who had given up the work, almost all cases in which a husband had resumed or found better work and the worker concluded that, at the rates of pay available, the work was no longer worth her time. In one case where the “woman took the work when husband was out of employment,” her “husband said he would not have her do it any more

at such rate of wages, and would throw the shirts out of window, so she has taken no more" (1897, 45). In another a box maker with "husband at present in good work" stated that "prices have gone down so that it is not worth her while to take any more boxes" (1908, 141). And in a third case, a married woman "had been offered flannel blouses at 1/9 a dozen, but had refused these" and said that "she has given up the work as her husband, a French polisher, is now in work" (1908, 59).[52]

In this sample of working women, the few who were planning to give it up or had just done so are relatively isolated examples, but there are many instances of married and single women with husbands or fathers working who state that they do relatively small amounts of work to supplement the husband's wages or for their own pocket money. These are workers who are often described as being from "respectable" or "comfortable" households and as being in "good condition," and as earning relatively high wages. One married woman with a husband in work "only works when she chooses" (1897, 15); another "only works to please herself" (1897, 23); several more say they work "to get little extras for the children" (1897, 37). Another married woman "evidently only does work now and then to make a little extra" and "often works less than 8 hours, but would make 1/6 a day if working that time" (1897, 79) -- for an implied hourly wage that, at 2.25d per hour, was higher than the average in the 1897 sample. In the case of another woman from a "comfortable" home with husband in work, "both husband and wife said she worked for the best shop this side of the river" (1897, 15). While women with working husbands do appear to have had more flexibility in deciding whether to work, for how long and possibly at what wage rate, their relative "comfort" shouldn't be overstated. In the example cited

[52] In one very unusual but noteworthy instance, a married woman whose husband gave her 20s a week said that "she has given up the work as she is too stout, weighs 20 stone and cannot sit at machine as it tires her" (1908, 127).

above of the woman who worked for little extras for the children, the husband earned 24s a week. According to Rowntree's 1899 minimum standard poverty line, this would have been enough to support a wife and two or three children, but not by a very large margin. Households like this were far from wealthy -- they just weren't necessarily desperate for additional income. A girl described as living with her family in relative comfort, with her father in work, "only works for herself, and is evidently not pressed" -- described as so because "she took a day off when not feeling well" (1908, 67).

Contemporary observers of home workers in London in the late nineteenth and early twentieth centuries believed that, among this class of workers, it was the least needy who were able to command the highest wages, and had the relative luxury of working fewer hours, while women from poorer households, or who were forced into work by the unemployment or death of a husband, generally fell into lower wage work and worked longer hours to maintain household income. The two HIWL surveys offer, for the first time, the necessary data to see to what extent this was true, and whether there was indeed a negative relationship between wages and hours of work among home working women. Anecdotally, there seems to be evidence that married women in particular entered and left work depending on the employment of their husbands, and were able to reduce hours when their spouses were in work, and that all three groups struggled to balance work for wages with household duties -- where survival was less of an issue, women might have traded higher wage work for additional time in domestic production. In the next section, I am able to examine the average earnings, wages and hours of work of groups of women in a number of different home industries, and to relate their wages and work hours to variables such as whether their husbands were in work, the number of children, whether the

worker or another household member suffered from a health issue, and whether the worker and her household were described in positive or negative terms.

III. The Home Industries of Women in London Reports

Unfortunately, very little information has survived about how or why the two studies were undertaken. The tables of information relating to 404 cases in 1897 and 446 cases in 1908 survive intact, but except for a very brief introduction to the material written by Clementina Black for the 1897 report, each contains only the raw tabulated data, which does not seem to have ever been compiled and analyzed in any systematic way.[53] Because there is so surprisingly little introductory or analytical material in the reports, it is not possible to say much about how or by whom specifically the investigations were carried out. They were a product of the Women's Industrial Council's Investigation Committee, which was headed by Black. The Women's Industrial Council (WIC) had been established in 1894 as a "permanent association on a broad basis for the purpose of watching over the interests of women engaged in trades, and over all industrial matters which concern women" (WIC, 1911, 3). It was comprised mainly of middle-class women who were clearly highly sympathetic to the plight of low-wage female workers; the WIC investigated over 100 trades and publicized the results with the hope of influencing public policy, and Black herself wrote numerous pamphlets supporting minimum wages for women. A WIC pamphlet stated that "the work of the Investigation Committee is that of an intelligence department which maps out the work of all the others; for without full investigation it is impossible either to legislate or organize wisely." The committee "undertakes from time to time to investigate in one of its chief centres the actual conditions of a given trade in which women

[53] Black's sole introduction can be found in *Home Industries of Women in London* (1897, 5-6). There is actually no introduction to or analysis of any kind of the 446 cases in the 1908 report.

are employed. This entails systematic visits of enquiry to employers, factories, workshops, home workers, employees, trade union and other officials, and then the drafting of a report with tabulated results" (WIC, 1911, 5). Of the HIWL investigations, the WIC explained that "one of the important tasks undertaken by the Committee was an enquiry into the condition of the poorest and most helpless of the industrial army, namely, women home workers" (WIC, 1911, 6).

On the title page of the 1897 report the investigation committee thanks the clergy of Whitechapel and Southwark, the Scripture Readers Union, St Frideswides Mission, Poplar and two or three women "for their assistance in securing the addresses of home workers," so it appears that they compiled lists of home workers to visit from whatever sources they could. In the introduction, Black states that each case was reported by a "person visitor to the house" and that "no selection of cases has been made" (1897, 5). There is no information given in the introduction or in the individual cases about where in London these households were concentrated, but the 1897 report contains short special reports on workers in Shoreditch, Southwark, Bethnal Green and Woolwich. Other place names that get mentioned in isolated instances are Stepney Green, Minories, Peckham and Camberwell, so it seems likely that the investigation was largely centered in the East and Southeast areas of London. These place names are typically mentioned in the context of carrying work to and fro, and most of these go from one of the boroughs listed above to a more central location -- the City, Wardour Street, Tottenham Court Road, and Chelsea are all mentioned by name (the City by far the most often). Information is given about commuting times for a number of women in each report. They varied enormously, from getting work from a neighbor or nearby middleman to journeys of several hours or a full half day. The average time it took to fetch and return work was 1 1/2 hours in 1897 and a little

less, about an hour and a third in 1908. There was also a lot of variance in how often workers reported making journeys -- typically it ranged from once or twice a day to once a week or every two weeks -- so it is difficult to generalize, but the impression left is that significant amounts of time were involved in getting and returning work and payments. It also appears to have been very common, especially in 1897, to send a child to fetch and carry work.

The 1897 report contains women working in seventeen major trades, plus a few contained in a miscellaneous category. They are: arsenal work (military equipment, mostly sewing bags of various sorts), brush making, cardboard box making, match box making, fur pulling (pulling fur off of hides), tailoring, shirt making, tie making, ball (tennis and racket) covering, bead and braid work (embroidery), boot and shoe making, umbrella making, steel covering, doll making, sack making, artificial flower making, women's and children's clothing, and, under miscellaneous work, paper bag making, tassel making, chair caning, stringing toy bats, trunk making, stitching dog collars and leashes, metal tubes (i.e. "tormentors")[54], sewing painters' jackets, ostrich feather cleaning, basket making, bird cages, "certain processes in preparation of goldbeater skin,"[55] colouring canes, mop making, binding and lining men's tall hats, book sewing, fancy hair rolls (rolls and nets), carpet sewing and plush frames. The 1908 report also contains women working in 17 major trades and a miscellaneous category, though some of the trades represent subdivisions of those given in the 1897 report. Women's and children's clothing was broken down into blouse making, dress making, women's and children's underclothing, mantle (women's suits) making, and corsets. Tailoring, which traditionally only referred to men's

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[54] I have no idea what this means. The explanation in the description is, "she brings tubes from factory, fills with water, and closes up" (1897, 87).

[55] Also something of a mystery; further explanation says, "stretches skin on frames, scrapes off grease, treats with pumice stone, mends tears, etc. An exceedingly skilful worker" (1897, 87).

clothing, was presented as trousers and coats and waistcoat making in the 1908 report. Other trades include: artificial flower making, cardboard box making, match box making, brush making, embroidery and bead work, glove making, millinery, shirt making, shoes and shoe beading, ties and belts and, under miscellaneous work, tacking doors on mousetraps, cracker making (as in Christmas toys), sack making, tennis ball stitching, pompom making, sewing of flannel bags for pressing gum through (to make postage stamps), fishing nets, medical bottle washing, bible folding, book folding, paper bag making, doll making, sock making, and stitching dress steels.

Workers in the HIWL often frankly stated that they could make more by working in a factory -- so why were they at home? With the exception of one or two single women who stated that they preferred their own homes to the factory environment, the overwhelming reasons seem to be that they were married with children at home and household duties, widowed with children at home, or too old to enter factory work, or kept home by the need to care for an elderly, disabled or ill relative. In many cases, it was clearly a struggle to balance work and domestic duties, and a handful of married women stated, with apparent relief, that they could give up the work or cut back when their husbands were employed.

The workweek, in terms of hours calculated from the 1908 report, appears to have been shorter than that of a typical factory week, on average, but the estimates of daily hours were frequently longer than a typical factory day of about 9 hours. The explanation seems to lie in the irregularity of home work -- extremely long hours when work was available coexisted with slack periods when none was available at all. There was a clear trade off between the relative

convenience of working at home and the regularity of the work. Women stated time after time that factory hands always got work first when it was in short supply.[56]

IV. Data and Results

The two surveys were very similar, but there are a few key differences that can make direct comparison tricky on some dimensions. Each is presented as a series of tables, organized by industry, with a number of cases listed, each representing an individual homeworker. Across the tables are columns representing different categories of information: "nature of work" lists the industry and specific item made, "price paid" gives the relevant piece rates paid, "average cost of working materials per week" sometimes gives a money amount and sometimes a description of what materials the worker provided herself or were provided for her by the employer. "Average earnings for the day and week" are both listed, but normally one or the other is given, rarely both. "Number of hours in working day" is followed by "condition of worker," which typically gives marital status, where or how the work is done ("alone", or "in kitchen" would be sample typical entries) and sometimes an adjective describing the worker or dwelling ("respectable," "good," "poor," "clean and tidy"), and finally by a column of "general remarks," which contains a wide variety of information. If there is information about the husband, children, other earnings and sources of income, it is found here, as is any information about previous work or training, health issues in the household, travel to fetch and carry work, and any comments the worker has made about reasons for working, giving up work, or general satisfaction with the work, pay and employer.

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[56] Though interestingly, Schmiechen's review of various reports relating to outworkers in London suggests that outwork actually made work in seasonal trades "more intensely" seasonal for factory workers as well, as the availability of outworkers when work was plentiful condensed the seasons for all workers and made employers more reluctant to keep factory workers on hand in slack times (Schmiechen, 59).

Overall, the 1908 report provides more detailed information in the general remarks category, so much more is known in particular about husbands, children, other sources of income and training history. The 1897 report, on the other hand, tended to report more regularly an adjective about the worker's condition in the condition of worker column. Entering the information given in these two columns as variables in a spreadsheet was not always straightforward, and mostly resulted in a series of indicators, for marital status, whether a husband was present, described as out of work, sick or in casual or irregular work, whether children were present and their number if given, and the sources and amounts of additional household income if given. Additionally, it was noted if the worker gave any information about training or travel time, if the household was described as respectable, comfortable, clean and tidy, rough, slatternly, or dirty and untidy, if health issues of any household member were mentioned, or if the worker was described as in good, fair or bad condition or as pleasant, cheerful, bright or healthy. Finally, some workers expressed explicit like or dislike for the work, or whether they felt that had enough or not enough work, or thought prices in the trade had fallen. In many cases, the number of times these various descriptors came up was small, but mentions of health issues and some description of the worker or household were common.

1. 1897 Report

The 1897 report gave less in the way of extra information about the household, but it was very regular in the listing of piece rates, daily earnings and daily hours. Unfortunately it gave little direct information about hourly wages or weekly earnings. Tables 2.1 and 2.2 present daily and weekly earnings, daily hours and wage rates by marital status and industry from the 1897 report.

Table 2.1: Earnings, Hours and Wage Rates by Marital Status, 1897

Marital Status	Daily Earnings s.	Weekly Earnings s.	Daily Hours	Wage Rate d/h
All (404)	1.54 (322) 0.689	7.06 (106) 3.52	10.9 (317) 2.18	1.77 (266) 0.771
Single (46)	1.60 (32) 0.745	8.13 (15) 3.08	11.0 (37) 1.99	1.91 (27) 0.895
Married (184)	1.51 (149) 0.705	7.16 (49) 4.22	10.6 (148) 2.22	1.80 (128) 0.800
Widowed (75)	1.59 (60) 0.724	6.69 (14) 2.46	11.3 (58) 2.25	1.66 (50) 0.752
Unknown (99)	1.53 (81) 0.622	6.46 (28) 2.78	11.1 (74) 2.12	1.73 (61) 0.668

Note: In each cell, Mean (# Observations), with St. Dev. below.

About three quarters of cases reported daily earnings and daily hours, and hourly wages are calculated from these by dividing daily earnings by daily hours. The hourly wage estimates, then, are heavily reliant on how accurate each of the answers given for daily earnings and hours was, but the assumption of the investigators seems to have been that these answers meant “in a day of x hours I could earn x shillings.” The average wage, calculated this way, was 1.8d. (pence) per hour. Weekly earnings were given in only about one quarter of cases, and it is difficult to infer from daily earnings what weekly wages actually were, since that would depend on how many days the worker had full work -- the daily average does not necessarily reflect how much work, or time to work, would be available every day for six days. Average daily earnings come out to 1.5s per day, average hours 10.9, and average weekly earnings, where reported, come out to about 7s a week (coincidentally, that is Rowntree’s 1899 subsistence line for a single female),

Table 2.2: Earnings, Hours and Wage Rates by Trade, 1897

Trade	Daily Earnings s.	Weekly Earnings s.	Daily Hours	Wage Rate d/h
Arsenal Work (4)	2.74 (3) 0.445			
Brush Making (34)	1.43 (25) 0.521	6.30 (9) 1.71	12.1 (30) 2.4	1.60 (23) 0.564
W&C Clothing (46)	1.42 (28) 0.730	6.87 (18) 3.69	10.7 (39) 1.90	1.78 (24) 1.02
Artificial Flowers (14)	1.49 (9) 0.69	13.1 (6) 5.86	10.5 (12) 2.08	1.68 (9) 0.635
Ball Covering (5)	1.67 (4) 0.824	5.5 (1)	10.5 (1)	2.86 (1)
Bead and Braid (21)	1.325 (15) 0.566	5.95 (5) 4.20	11.5 (14) 1.79	1.31 (12) 0.552
Boot and Shoe (23)	1.49 (17) 0.683	8.46 (7) 4.01	10.3 (18) 2.22	1.97 (15) 0.974
Cardboard Box (39)	1.58 (35) 0.603	6.89 (3) 0.835	11.6 (27) 1.92	1.75 (25) 0.469
Doll Making (3)	1.83 (2) 0.471	7.0 (1)	14 (3) 3.97	1.90 (2) 0.653
Fur Pulling (26)	1.19 (26) 0.177	7.15 (26) 1.06	9.93 (23) 1.22	1.47 (23) 0.142
Match Box Making (25)	1.03 (22) 0.319	2.375 (2) 2.30	10.23 (20) 1.33	1.25 (20) 0.472
Sack Making (14)	2.14 (13) 0.466	12 (1)	12.3 (13) 0.665	2.06 (12) 0.464
Shirt Making (31)	1.63 (26) 1.04	2.74 (8) 1.69	12.6 (14) 2.54	1.73 (13) 1.10
Steel Covering (6)	1.19 (5) 0.252	5.5 (1)	10.7 (6) 2.08	1.26 (5) .083
Tailoring (54)	1.76 (47) 0.751	8.8 (5) 2.08	10.1 (49) 1.90	2.12 (43) 0.801
Tie Work (11)	2.12 (7) 0.616	6.56 (4) 2.57	10 (8) 1.25	2.63 (6) 1.01
Umbrella Making (14)	1.82 (12) 0.531	7.0 (2) 2.82	11.0 (12) 3.34	2.30 (10) 0.838
Miscellaneous (34)	1.48 (27) 0.652	7.48 (7) 4.61	10.8 (29) 2.60	1.66 (24) 0.761

which represents a bit less than five full days of work. Multiplying daily earnings by 6, for a full-week upper bound on weekly earnings, yields an average of about 9s a week, while a lower bound of three days of work would have given an average of about 4.5s a week.

Table 2.1 also breaks down average daily and weekly earnings, daily hours and wage rates by marital status, while Table 2.2 does the same by trade.[57] Wages and weekly earnings are highest for single women, followed by married women and then widows. Widows and single women appear to work longer days than married women, though the difference is perhaps smaller than expected, given the greater likelihood that married women would have husbands and children underfoot. Wage rates are highest in tie work, umbrella making and tailoring and lowest in match box making, steel covering and bead and braid work (embroidery). Hours are longest in shirt making, sack making and brush making, and shortest in fur pulling, tie work and tailoring. Weekly earnings, though the observations are few, are exceptionally high in artificial flower making and high in the boot and shoe trade, and exceptionally low in match box making and shirt making (though some of those observations were noted as being for earnings in the current or previous slow week, rather than for a typical week).

Table 2.3 briefly provides information on some aspects of the households of the women interviewed. As would be expected, households of married women were more likely to contain children, and contained more where an average number was given. About 18% of households were noted as having some member with a health issue, and the proportion is highest among those of single women. Initially a bit surprising, this probably provides some of the explanation for why many single women were working at home in the first place -- either because their own

[57] The unknown category comes from the fact that some observations don't mention this, and it is very difficult to infer otherwise. It is unclear whether this was an investigator issue -- didn't get the information at the time -- or a style issue in tabulating the report. There is a tendency for "unknowns" to occur in streaks.

Table 2.3: Household Characteristics, 1897

	Children Average # Given	Children Present (Y)	Health Issues (Y)	Resp/ Comf (Y)	Clean/ Good (Y)	Dirty/ Poor (Y)
All (404)	3.21 (115)	185	71	45	118	97
Single (46)	1.25 (4)	4	12	4	14	9
Married (184)	3.67 (69)	116	27	20	60	44
Widow (75)	2.41 (32)	42	9	10	22	16
Unknown (99)	3.50 (10)	23	23	11	22	28

Note: Number of observations in parentheses.
See text for explanation of Health Issues, Res/Comf, Clean/Good and Dirty/Poor designations.

weak health or disability kept them home, or because they were supporting a family member who was ill. Where it is specified, it appears that relatively few single women lived alone. Younger unmarried women were often still living with parents, while older unmarried women were often living with siblings or other single women. Just over 10% of women or their families were described as respectable or comfortable, and the highest proportion seems, slightly frustratingly, to be in the unknown marital status category. By far the most common set of descriptors was some combination of clean and tidy, bright and pleasant and/or in good condition, and there was very little difference in the proportions of married, single and widowed women described using one of these positive terms. The last category covers women and households described in negative terms -- as dirty, untidy, rough, slatternly, or slovenly. Here, again, there is not a big difference in their distribution among different groups, but a slightly higher proportion of married women's households were described this way.

Table 2.4: Husbands' Work Status and Occupations, 1897

	Deserted/Separated	Working/ Occupation	Out of Work/Sick/ Irreg/Casual
Husbands (184)	5	83	69
Husband's Occupations Listed:			
Labourer (16)	Cabinet Maker (2)	Driver	Sailor
Carman (10)	Agent for Singer	Glassblower	Sausage Maker
Dock Labourer (10)	Bricklayer's Labourer	Marble Worker	Ship's Clerk
Warehouseman (4)	Butcher's Assistant	Match Box Stamping	Tailor
Boot & Shoe (3)	Caretaker	Porter	Waiter
Brush Boring (3)	Carter	Printer	Hairdresser
Painter (3)	Chair Maker	Road Labourer	
Bricklayer (2)	Cook's Labourer	Saddler	

Note: Total number in parentheses; total=1 if no number given
See text for explanation of Working/Occupation and Out of Work/Sick/Irreg/Casual designations.

Table 2.4 presents the information given about husbands' work status and occupation. Nearly half, 45%, of husbands are mentioned as being "in work" or as having an occupation, while 37.5% are mentioned as being out of work, sick, in irregular or casual work, or as having deserted the wife. About the rest no specific information was given, and even among those listed as "in work" or with an occupation, many might still have been engaged in an irregular or casual trade -- just because they were working at the time of the survey does not necessarily indicate that the work was regular. So 45% is most likely an optimistic upper bound on how many were typically employed, and 38% a definite lower bound on how many wives were pulled into work by their husbands' irregular or casual labor. Unfortunately, in the 1897 report, husband's earnings were only reported in ten cases, ranging from 16s to 27s per week. According to

Rowntree's 1899 minimum standard, the requirement for a family of 4 was about 19s, a family of 5 required 21.7s and a family of 6 required 26s, so most of these earnings were right in the range for an average family of five, but could easily have been on the line or have fallen short if their families were larger (and in fact, six out of the seven of those whose household sizes were recorded would all have fallen short -- they all had more children than their earnings alone could have supported, according to Rowntree). Only seven women reported receiving poor relief, and three the amounts -- 2.5s, 2.5s and 6s per week. Little information was given about amounts of income received from other sources, though some other sources were listed. A few women reported having received help from the C.O.S. (Charity Organization Society), from the church, from family members, and from other work they did on the side -- keeping a small shop, washing and charing, or letting rooms.

Table 2.5 compares the average earnings, daily hours and wage rates of workers whose households fell into various descriptive categories. Women in households where there were health issues noted -- their own or a family member's - reported lower daily and weekly earnings, longer hours and lower wage rates. One interpretation could be that workers whose own health was compromised were slower, and needed to work longer hours in order to support themselves, and another could be that those workers who were forced into the labor market by the illness of the main breadwinner were compromised in their ability to seek out more remunerative work. Women in homes that were described as "respectable" or "comfortable" reported higher daily and weekly earnings and wages and shorter work hours. This is consistent with the idea that women from less needy households were more highly skilled and could seek

Table 2.5: Earnings, Hours and Wage Rate Comparisons, 1897

	Daily Earnings s.	Weekly Earnings s.	Daily Hours	Wage Rate d/h
Health Issues Y	1.24 (53) 0.488	6.75 (29) 2.55	11.4 (58) 2.38	1.35 (45) 0.425
Health Issues N	1.60 (269) 0.710	7.17 (77) 3.84	10.8 (259) 2.13	1.86 (221) 0.799
Respectable/Comfortable Y	1.94 (36) 0.826	9.54 (11) 3.85	10.2 (37) 2.56	2.34 (31) 0.969
Respectable/Comfortable N	1.49 (286) 0.657	6.77 (95) 3.39	11.0 (280) 2.11	1.70 (235) 0.712
Clean/Tidy/Good Cond. Y	1.71 (99) 0.811	7.93 (25) 3.96	11.0 (95) 2.33	1.92 (81) 0.787
Clean/Tidy/Good Cond. N	1.47 (223) 0.617	6.78 (81) 3.36	10.9 (222) 2.13	1.70 (185) 0.758
Dirty/Rough/Poor Y	1.32 (86) 0.561	5.84 (25) 2.55	11.2 (74) 2.07	1.47 (68) 0.579
Dirty/Rough/Poor N	1.62 (236) 0.716	7.43 (81) 3.71	10.8 (243) 2.21	1.87 (198) 0.803
Husband Working	1.57 (70) 0.757	6.24 (17) 4.54	9.9 (64) 2.04	1.99 (60) 0.816
Husband OW/S/Irr/Cas	1.37 (56) 0.618	7.12 (24) 4.01	11.4 (60) 2.35	1.49 (51) 0.673
Married Children Y	1.48 (95) 0.714	7.80 (30) 4.57	10.3 (88) 2.10	1.78 (79) 0.746
Married Children N	1.56 (54) 0.692	6.15 (19) 3.47	11.1 (60) 2.32	1.83 (49) 0.888
Widow Children Y	1.71 (37) 0.685	6.68 (7) 2.46	11.6 (36) 1.91	1.80 (32) 0.782
Widow Children N	1.39 (23) 0.755	6.70 (7) 2.65	10.9 (22) 2.72	1.42 (18) 0.646

Note: In each cell, Mean (# Observations), with St. Dev. below.

out better-paying work, and that they were not required to work long hours in order to support themselves or others. Women whose homes were described as clean and tidy or workers described as being in good condition also had slightly higher earnings and wages, but there is no difference in reported hours. Finally, women whose home were described as dirty or untidy or workers who were described as "rough" or in poor condition reported lower earnings and wage rates and worked longer hours.

Married women with husbands who were recorded as out of work, sick, or in casual or irregular work also reported lower daily and weekly earnings, lower wage rates and longer hours than did those whose husbands were recorded as in work. Since the wives of unemployed men presumably had larger household income shortfalls to make up, this seems to suggest that the observations of contemporaries had some merit. They had a greater need for extra income, but, whether because of lower skill levels, long absences from work, or a lack of bargaining power, they found themselves in lower wage work than did women whose husbands were working. Married women with children reported slightly lower wage rates and daily earnings and shorter hours per day, but actually reported higher weekly earnings. This is curious, but it could be that having children present both slowed the worker down and limited the hours available each day, and increased the household's need for additional income, causing married women with children to work more days per week. Widows with children reported longer hours, at higher wages and with greater daily earnings. In this case, it is likely that the discrepancy largely reflects an age difference -- widows with children to support would have been younger, and better able to restart or learn new work and work long hours.

Table 2.6: OLS Estimates of Daily Hours, 1897

	(1)	(2)	(3)	(4)	(5)	(6)
Wage d/h	-0.839	-0.814	-0.847	-0.729	-0.714	-0.742
	(0.153)***	(0.153)***	(0.159)***	(0.155)***	(0.156)***	(0.162)***
Husband OSIC				0.842	0.890	0.918
				(0.351)**	(0.353)**	(0.345)***
Children Y/N					-0.343	-0.139
					(0.259)	(0.252)
Single		-0.175	0.076	-0.190	-0.222	0.035
		(0.443)	(0.427)	(0.439)	(0.439)	(0.423)
Married		-0.547	-0.121	-0.889	-0.764	-0.480
		(0.298)*	(0.298)	(0.328)***	(0.340)**	(0.341)
Widow		0.179	0.562	0.185	0.338	0.583
		(0.365)	(0.369)	(0.362)	(0.379)	(0.380)
Trade Controls	N	N	Y	N	N	Y
Constant	12.361	12.565	13.041	12.418	12.459	13.239
	(0.296)***	(0.360)***	(1.862)***	(0.362)***	(0.363)***	(1.847)***
Observations	266	266	266	266	266	266
R-squared	0.10	0.12	0.29	0.14	0.15	0.31
	Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Dependent variable = number of hours worked per day.
Wage rate is given in pence per hour.
Husband OSIC indicates whether the husband was noted as out of work, sick, or in irregular or casual labor.
Excluded category in relation to Single, Married, Widow is Unknown.

Table 2.6 presents some very simple OLS estimates of daily hours. This is far from a satisfactory labor supply function -- the data simply do not contain enough information about important variables such as age and other household income. It should be interpreted simply as a collection of suggestive relationships. In column 1, daily hours is simply regressed on the wage rate; the relationship is negative and significant, and suggests a reduction of a little less than an hour of work (.8) per day per extra penny per hour. That is consistent with a situation in which, say, a worker earning 2d per hour works 10 hours a day, and a worker earning 4d works 8 hours --

which though very rough, does seem plausible. Controlling for marital status, trade of employment, the husband's unemployment and the presence of children lower the magnitude of the effect, but only slightly. As would be expected, the unemployment of the husband has a significant positive effect on hours per day, and would have increased a married woman's work day by almost an hour on average. The presence of children has no significant effect -- as was noted above, in this context children can have an ambiguous effect on labor supply. Their presence typically reduces the hours that married women have available for work, but also increases the number of mouths to feed in the household.

The equations in Table 2.7 investigate various possible influences on the wage. Data limitations mean, again, that these are far from standard wage or earnings equations, but they do provide some suggestive relationships between household and personal characteristics that might have affected human capital accumulation and status in the labor market. The qualitative description of the condition of the household given in the survey was highly correlated with wage rate commanded by the worker. Coming from a household that was described as dirty, untidy, rough or poor was also associated with lower wages, while coming from a household described as respectable or comfortable was strongly associated with higher wages. Causation would obviously be running in both directions and the descriptions are highly endogenous with the wage rate, but it is interesting, and reassuring, that the qualitative descriptions correspond so closely to the wage rate. The presence of health issues in the household was associated with lower wage rates and daily earnings, which could be the result of decreased personal productivity or, when the need was to support a family member who was ill, with decreased ability to seek out

Table 2.7: OLS Estimates of Wage Rates, 1897

	(1)	(2)	(3)	(4)	(5)	(6)
Health Issues	-0.445***	-0.378***	-0.366***	-0.287**		
	(0.107)	(0.107)	(0.118)	(0.117)		
Health (other)					-0.340**	-0.300*
					(0.172)	(0.167)
Health (her)					-0.363**	-0.287**
					(0.142)	(0.143)
Resp/Comfortable	0.576***	0.507***				
	(0.138)	(0.134)				
Dirty/Rough/Poor	-0.319***	-0.300***				
	(0.101)	(0.0978)				
Husband OSIC			-0.368**	-0.366***	-0.369**	-0.354**
			(0.142)	(0.138)	(0.146)	(0.143)
Single	0.229	0.179	0.181	0.156	0.190	0.166
	(0.164)	(0.158)	(0.171)	(0.164)	(0.175)	(0.167)
Married	0.0441	0.0150	0.188	0.189	0.189	0.186
	(0.110)	(0.110)	(0.128)	(0.129)	(0.129)	(0.129)
Widow	-0.136	-0.320**	-0.105	-0.274*	-0.105	-0.276*
	(0.135)	(0.136)	(0.142)	(0.142)	(0.142)	(0.142)
Trade Controls	N	Y	N	Y	N	Y
Constant	1.859***	2.083***	1.826***	1.951***	1.825***	1.952***
	(0.101)	(0.475)	(0.0990)	(0.497)	(0.100)	(0.499)
Observations	267	267	267	267	267	267
R-squared	0.173	0.321	0.091	0.262	0.093	0.265
	Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Dependent variable = wage rate in d/h
See text for explanation of Health Issues, Res/Comfortable, Dirty/Rough/Poor.
Husband OSIC indicates whether the husband was noted as out of work, sick, or in irregular or casual labor.
Excluded category in relation to Single, Married, Widow is Unknown.

better pay. The specifications in columns 5 and 6 divide the variable so that Health (other) equals one if the survey reports that someone else in the household was sick or injured and Health (her) equals one if the worker herself was sick or injured. The worker's own ill health would be expected to exert a downward influence on the wage earned as the result of decreased

productivity, but the negative impact of another household member's ill health, which is about equal in magnitude, is perhaps surprising. If the ill health of a parent, husband or child created the need for additional household income and forced the daughter, wife or mother into seeking out work that she would not normally have undertaken, this variable might be the best measure of the effect of reduced bargaining power in the labor market on the wage. A similar interpretation could be attached to the negative impact of having a husband who was out of work, sick, or in irregular or casual work on the wage. Wives forced into the labor market by an out of work or low-earning husband may have had their ability to seek out or negotiate higher-wage work reduced by the necessity of bringing in an income quickly -- and were also likely to have been less skilled and experienced in the labor market than more regular workers. It is difficult to separate the effects of lower human capital accumulation from lesser bargaining power (since they would be closely related), but further information in the 1908 survey about prior training and work experience offers an opportunity to examine these factors as well.

2. 1908 Report

While the 1897 report was most consistent in reporting daily earnings and daily hours, the 1908 report was most consistent in reporting average weekly earnings and hourly rates of pay. The 1897 report was strict in only reporting piece rates under the price paid category, but in many cases in the 1908 report, these were followed by some estimate of how many the worker could do in a set amount of time. In some cases that unit was a day, and daily hours of work were provided, so that the estimate was obtained as in the 1897 report, by dividing daily earnings by daily hours, but more often the wage rate was given more directly (so many in an hour, one takes ten minutes, etc.). Implied weekly hours of work were obtained using the available data on

hourly wage rates and weekly earnings. In some cases, separate estimates of daily hours of work were provided in the report as in 1897. Where weekly hours could be calculated and daily hours were given as well, they imply a workweek of just under five days. Table 2.8 presents daily earnings, weekly earnings, daily hours, estimated weekly hours and wage rates in 1908. Nominally, daily earnings, weekly earnings and hourly wages had increased slightly since 1897, up to about 2s per day, 8.7s per week and 2.7d per hour. Daily hours had decreased very slightly to 10.6, and the average of weekly hours was about 43 -- far less than the 60-66 that would be expected if these women were working full six day weeks.

Table 2.8: Earnings, Hours and Wage Rates by Marital Status, 1908

Marital Status	Daily Earnings s.	Weekly Earnings s.	Daily Hours	Weekly Hours	Wage Rate d/h
All (446)	1.99 (186) 1.41	8.72 (378) 5.32	10.6 (171) 3.39	43.4 (261) 17.1	2.73 (278) 1.72
Single (66)	2.75 (32) 1.76	12.4 (55) 5.98	10.9 (34) 2.45	48.2 (42) 14.4	3.16 (44) 1.60
Married (202)	1.68 (84) 1.10	7.15 (174) 3.78	10.5 (59) 4.05	41.2 (114) 17.6	2.46 (123) 1.30
Widowed (73)	1.42 (35) 0.696	6.63 (63) 3.24	12.13 (24) 3.43	44.2 (43) 18.8	1.98 (46) 0.878
Unknown (105)	2.61 (35) 1.76	11.06 (86) 6.58	9.9 (54) 2.92	43.9 (62) 16.4	3.47 (65) 2.46

Note: In each cell, Mean (# Observations), with St. Dev. below.

Again, single women earned the highest weekly wages and hourly rates, followed by married women and then widows. Widows worked the longest reported daily hours, as in 1897, but single women worked the longest weekly hours, suggesting that they were most able to find regular employment. Earnings and hours worked broken down by trade are presented in Table 2.9. By far the highest weekly earnings and wage rates were found in waistcoat making, the most highly skilled branch of the tailoring trade. Next was mantle (women's suits) making, and then women's and children's underclothing, dress making and blouse making, all branches of the clothing trade. The highest hourly wage rates were found in millinery, corsets and dress making. The lowest wages were reported in match box making, box making, artificial flowers and brush making, and the lowest weekly earnings in match box making, brush making, box making and men's trousers and coats (hard, but much less skilled tailoring work). The longest weekly hours were to be found in match box making, the miscellaneous trades, dress making and women's and children's underclothing.

The only real source for comparison with the average wages and earning obtained from the HIWL reports is with those in the Board of Trade's 1906 enquiry into wages and hours, which covered only workers in factories and workshops. Table 2.10 gives average weekly earnings in the clothing industry taken from the 1906 wage census. Though the average earnings of waistcoat makers, the most highly skilled home workers in tailoring, may have met or exceeded those earned by women in bespoke work in factories, the average weekly earnings of workers in the ready-made trousers and coats segment of the tailoring trade in 1907 appear to have earned about half the average of their factory counterparts. Taken together, home shirt and blouse makers earned about 9s per week in 1907, compared with 13.3s for factory and workshop

Table 2.9: Earnings, Hours and Wage Rates by Trade, 1908

Marital Status/Trade	Daily Earnings s.	Weekly Earnings s.	Daily Hours	Weekly Hours	Wage Rate d/h
Artificial Flowers (8)	1.52 (4) 0.503	8.50 (7) 2.87	10.8 (4) 2.5	54.2 (5) 17.5	1.71 (5) 0.329
Blouse Making (22)	2.70 (4) 1.18	11.30 (15) 4.47	9.67 (9) 2.83	48.2 (4) 16.3	2.68 (5) 1.01
Box Making (107)	1.24 (43) 0.405	6.29 (94) 2.59	10.4 (24) 3.16	42.0 (51) 12.6	1.91 (51) 0.587
Brush Making (11)	2.0 (1)	5.4 (9) 1.38	9.0 (3) 3.0	44.8 (5) 11.3	1.70 (6) 0.245
Corsets (6)	3.25 (3) 0.25	11.6 (5) 2.90	12.0 (4) 4.08	45.7 (3) 6.03	3.31 (4) 0.473
Dress Making (18)	2.64 (6) 1.13	13.43 (13) 5.89	11.9 (9) 2.53	48.5 (9) 24.9	3.23 (11) 1.19
Embroidery and Bead Work (12)	2.38 (2) 0.530	9.86 (9) 2.59	9.9 (9) 1.38	43.3 (9) 14.1	2.79 (11) 0.745
Glove Making (22)	2.15 (7) 0.473	9.28 (18) 3.69	9.23 (13) 2.08	45.0 (11) 14.5	3.01 (12) 0.780
W&C Underclothing (30)	2.78 (12) 1.50	12.26 (25) 6.18	10.6 (14) 2.86	48.6 (15) 14.0	3.10 (16) 0.904
Mantle Making (15)	3.0 (5) 1.74	12.08 (12) 6.05	12 (2) 0	36.7 (11) 9.9	4.54 (12) 3.94)
Match Boxes (24)	0.93 (16) 0.321	5.48 (22) 1.87	11.1 (10) 4.99	48.9 (17) 16.0	1.32 (17) 0.381
Millinery (5)	1.78 (3) 1.18	10.5 (3) 8.53	5.75 (2) 4.60	27.3 (3) 10.1	4.03 (4) 2.98
Shirt Making (43)	2.02 (19) 1.44	8.20 (35) 6.01	9.5 (15)	40.8 (29) 19.9	2.66 (32) 1.24
Shoes and Shoe Beading (19)	1.98 (5) 0.358	8.14 (14) 2.30	13.5 (9) 4.56	41.5 (8) 18.9	2.75 (10) 1.30
Ties and Belts (10)	2.5 (2) 1.41	8.58 (9) 2.87	10.9 (5) 1.88	34.5 (8) 12.13	3.13 (8) 1.21
Trousers and Coats (53)	1.45 (30) 0.713	6.81 (49) 3.60	11.7 (19) 3.49	42.5 (44) 20.2	2.13 (44) 1.02
Waistcoat Making (23)	4.5 (17) 2.07	18.3 (21) 8.32	10.1 (12) 3.20	43.2 (20) 18.3	5.46 (21) 2.35
Miscellaneous (18)	1.48 (7) 0.465	7.87 (18) 2.93	10.9 (8) 3.93	53.5 (9) 25.7	2.66 (9) 1.59

workers. Again, the most skilled home workers in dress and mantle making might have approached the weekly earnings of women doing similar work in workshops, but the pay of those doing ready-made work was undoubtedly lower than that earned by factory workers.

Table 2.10: Weekly wage rates in the clothing trades in the 1906 wage census

	Tailoring Bespoke	Tailoring Ready-made	Shirt, blouse, underclothing	Dress, millinery -- workshop	Dress, millinery -- factory
Weekly wage	Approximate percentage of adult females in each wage category				
under 10s.	15.4	24.0	22.2	28.0	12.6
10-14s.	42.4	46.6	46.0	36.2	39.5
15-19s.	29.3	22.5	23.5	21.1	30.5
20-24s.	10.3	5.5	6.1	8.4	11.4
25-29s.	1.6	1.1	1.4	2.6	3.5
30s. and over	1.0	0.3	0.8	3.7	2.5
Average Wage	14.17s.	12.92s.	13.33s.	13.83s.	15.42s.
Women N=	4245	11,372	22,339	25,921	5803
Average Male Wage	33.5s.	31.92s.	29.83s.	50.92s.	31.67s.
Men N=	7010	3411	1801	98	558

Source: Board of Trade Enquiry into Earnings and Hours of Labour of the Workpeople of the United Kingdom – Clothing Trades in 1906 (PP1909 LXXX)

Table 2.11 gives some information about the households of the women surveyed in the 1908 report. In general, more comprehensive information was given about the number of children in each household, and again they were heavily concentrated in the households of married women and, to a lesser degree, widows. It appears that the average household size of married women had fallen slightly (but is less clear whether those of widows had really increased, since so many

entries in the 1897 report simply said “widow with children”). Remarkably, nearly a third of the entries in the 1908 report contained some information about the worker’s employment history or training.[58] A health issue was reported in about 20% of households, relatively evenly among household types, though with a slightly higher concentration in households of widowed women -- most likely an indicator of their own infirmity. A higher proportion of households were designated as respectable or comfortable in 1908 than had been in 1897, with an especially high rate among single women, who are likely to have been the girls still living their parents. Both positive and negative adjectives relating to cleanliness and worker conditions were most commonly applied to the households of married women.

Table 2.11: Household Characteristics, 1908

	Children Average # Given	Training Mentioned (Y)	Health Issues (Y)	Resp/ Comf (Y)	Clean/ Good (Y)	Dirty/ Poor (Y)
All (446)	3.3 (203)	144	96	87	124	35
Single (66)	4 (10)	32	15	22	13	1
Married (202)	3.3 (150)	66	48	43	79	30
Widow (73)	3.3 (34)	24	19	7	22	3
Unknown (105)	2.4 (9)	22	14	15	10	1

Number of observations in parentheses.
See text for explanation of Health Issues, Res/Comf, Clean/Good and Dirty/Poor designations.

[58] This information still needs to be better coded, since the information is so heterogeneous, but promising -- it ought at least to be possible to differentiate among workers with no formal training, short apprenticeships and more significant apprenticeships.

Much more information was provided in the 1908 report about the occupations and work status of husbands. In nearly all cases, some indication that he was in work, had an occupation, or was out of work, sick, or in irregular or casual labor was noted. Just over 57% of husbands were recorded as out of work, sick, in irregular or casual work, and 41% were listed with an occupation or as in work. As in the 1897 report, these should be viewed as an upper bound on the number regularly employed and a lower bound on the number who might have been in irregular or casual labor, since those described as "in work" might only be in work for the moment. Table 2.12 lists the wide array of occupations named.

Table 2.13 compares the average earnings, daily and weekly hours and wage rates of workers whose households fell into various descriptive categories in the 1908 report, as in Table 4, but the results of the comparisons are a bit less straightforward than when using the 1897 data. As in 1897, women in households with health issues present earned less per day, earned lower hourly wages and worked longer daily and weekly hours. Women from households described as respectable or comfortable continued to earn higher wages and to report greater daily and weekly earnings, but also reported working longer hours per day. Since in this survey the households of single women were proportionally more likely to be described using these terms, this might reflect the greater ability of young single women to find regular work. There is very little difference between women in households described as clean, tidy or in good condition and those who were not, and in fact those in households that were not described using these terms exhibited slightly higher earnings and wages. However, it was still the case that women from households described as rough, poor or dirty earned less, and at lower wage rates.

Table 2.12: Husbands' Work Status and Occupations, 1908

	Deserted/Separated	Working/ Occupation	Out of Work/Sick/ Irreg/Casual
Husbands (202)	6	83	116
Occupations Listed:			
Labourer (22)	Bottle Washer	Furnaceman	Packer
Carman (8)	Builder's Labourer	Glass Trade	Painter's Labourer
Dock Labourer (5)	Canvasser in Coal	Glass Beveller	Pallaise Maker
Painter (4)	Carpenter	Greengrocer	Picture Frames
Railway Worker (4)	Carter	Hawker	Plumber
Boot & Shoe (3)	Caskwasher	House Decorator	Plumber's Assistant
Box Making (2)	Cellarman	Hat Trade	Porcelain Seller
Builder (2)	Cigar Maker	Last Maker	Porter
Cabinet Maker (2)	Coachman	Looking Glasses	Post Office
Mechanic (2)	Coppersmith	Mat Making	Potman
Shoemaker (2)	Couch Maker	Match Box Maker	Printer's Driver
Artificial Flowers	Electric Line	Meat Market	Tailor
in Arsenal	Engine Minder	Night Watchman	Waiter
Baker	Engineer	Odd Jobs	Warehouseman
Basket Maker	Engineer's Fitter	Tram Worker	Works for Borough
Blacksmith	French Polisher	Omnibus Driver	

Note: Total number in parentheses; total=1 if no number given
See text for explanation of Working/Occupation and Out of Work/Sick/Irreg/Casual designations.

Table 2.13: Earnings, Hours and Wage Rate Comparisons, 1908

	Daily Earnings s.	Weekly Earnings s.	Daily Hours	Weekly Hours	Wage Rate d/h
Health Issues Y	1.69 (43) 1.01	7.96 (85) 4.52	11.7 (39) 3.64	46.7 (57) 18.1	2.30 (60) 1.28
Health Issues N	2.08 (143) 1.50	8.95 (293) 5.52	10.3 (132) 3.27	42.6 (204) 16.7	2.85 (218) 1.80
Respectable/ Comfortable Y	2.73 (37) 1.93	11.06 (68) 7.04	11.4 (30) 2.88	44.7 (47) 18.5	3.17 (50) 1.80
Respectable/ Comfortable N	1.80 (149) 1.19	8.21 (310) 4.73	10.4 (141) 3.48	43.2 (214) 16.8	2.63 (228) 1.69
Clean/Tidy/Good Condition Y	1.83 (42) 1.49	8.3 (105) 4.98	10.2 (35) 2.87	41.6 (61) 15.2	2.60 (66) 1.40
Clean/Tidy/Good Condition N	2.03 (144) 1.39	8.89 (273) 5.45	10.7 (136) 3.52	44.0 (200) 17.6	2.77 (212) 1.81
Dirty/Rough/ Poor Y	1.08 (15) 0.651	7.10 (29) 3.15	9.3 (11) 3.86	43.1 (20) 16.3	2.02 (21) 1.21
Dirty/Rough/ Poor N	2.07 (171) 1.44	8.86 (349) 5.44	10.7 (160) 3.36	43.5 (241) 17.2	2.79 (257) 1.74
Husband Working	1.93 (24) 1.35	7.01 (69) 3.66	8.3 (14) 2.97	33.3 (38) 12.1	2.90 (44) 1.45
Husband OW/S/Irr/Cas	1.55 (59) 0.961	7.21 (104) 3.87	11.2 (45) 4.11	45.4 (75) 18.6	2.17 (77) 1.12
Married Children Y	1.56 (61) 1.03	6.89 (134) 3.43	10.4 (44) 3.86	40.4 (86) 17.3	2.37 (89) 1.17
Married Children N	1.98 (23) 1.22	8.04 (40) 4.73	10.9 (15) 4.70	43.9 (28) 18.5	2.69 (34) 1.58
Widow Children Y	1.60 (20) 0.683	7.24 (29) 2.74	11.6 (14) 4.03	46.0 (21) 14.7	2.04 (23) 0.906
Widow Children N	1.16 (15) 0.652	6.10 (34) 3.57	12.8 (10) 2.39	42.4 (22) 22.2	1.92 (23) 0.865

Note: In each cell, Mean (# Observations), with St. Dev. below.

Married women whose husbands were designated as out of work, sick or in irregular or casual labor reported lower daily earnings, and wage rates, as in 1897, and also appear to have worked longer hours daily and weekly. Their weekly earnings were actually reported as slightly higher than those of women with husbands in work, suggesting that the wives of unemployed men made up for shortfalls in household income by working longer hours at lower wages. Married women with no children earned higher wages, daily and weekly earnings and worked longer hours. As in the 1897 data, widows with children reported higher earnings, hourly wages and longer weekly hours; again, this was most likely a reflection of their younger age.

Table 2.14 presents the results of some very simple OLS estimates of hours of work for the 1908 data, as in Table 5 for 1897, but with weekly rather than daily hours of work as the dependent variable. Again, column 1 simply regresses weekly hours on the wage rate, and again, since controls for important variables such as age and other household income are missing, the negative relationship should not be interpreted as more than a suggestive association. As in the 1897 data, the relationship is significant and negative. A one pence increase in the wage rate would be associated with about a three hour reduction in working hours per week; a worker earning 2d over a 37 hour work week would still earn over 75% more than a worker earning 1d per hour over a 40 hour week. Controlling for marital status and trade actually increases the effect. Women whose husbands were out of work, sick or engaged in casual or irregular labor worked about ten hours longer per week than married women with husbands in work. As in the 1897 sample, children (here the number of children rather than their presence) had no significant effect.

Table 2.14: OLS Estimates of Weekly Hours, 1908

	(1)	(2)	(3)	(4)	(5)	(6)
Wage d/h	-2.666	-3.266	-3.835	-3.029	-3.059	-3.691
	(0.593)***	(0.618)***	(0.744)***	(0.611)***	(0.613)***	(0.735)***
Husband OSIC				10.342	10.287	9.803
				(3.161)***	(3.166)***	(3.287)***
Children Y/N					-1.649	-0.404
					(2.407)	(2.527)
Single		3.308	5.675	3.380	3.393	5.665
		(3.243)	(3.429)*	(3.183)	(3.186)	(3.383)*
Married		-6.342	-4.009	-12.879	-11.845	-10.064
		(2.649)**	(3.014)	(3.279)***	(3.613)***	(3.865)***
Widow		-4.809	-2.176	-4.441	-3.895	-1.859
		(3.355)	(3.658)	(3.295)	(3.393)	(3.646)
Trade Controls	N	N	Y	N	N	Y
Constant	50.670	55.321	58.620	54.492	54.809	57.059
	(1.901)***	(2.985)***	(10.110)***	(2.941)***	(2.980)***	(10.049)***
Observations	261	261	261	261	261	261
R-squared	0.07	0.12	0.18	0.15	0.15	0.21
	Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%					

Note: Dependent variable = number of hours worked per week.
Wage rate is given in pence per hour.
Husband OSIC indicates whether the husband was noted as out of work, sick, or in irregular or casual labor.
Excluded category in relation to Single, Married, Widow is Unknown.

The equations in Table 2.15 examine the relationships between wage rates and various characteristics of the worker's household, as in Table 2.7, but the results for 1908 are much less striking than for 1897. This is difficult to interpret, and it may simply mean that the 1908 wage data are noisier, or the descriptive characteristics less meaningful. In some cases the signs and magnitudes of the variables are similar, if not the level of significance, but in the case of health issues the size of the negative coefficient drops dramatically once the trade controls are entered. The same is true of the negative relationship between the husband's unemployment and the wage

Table 2.15: OLS Estimates of Wage Rates, 1908

	(1)	(2)	(3)	(4)	(5)	(6)
Health Issues	-0.322	-0.0930				
	(0.242)	(0.214)				
Health (other)			-0.0713	-0.259	-0.0310	-0.212
			(0.393)	(0.342)	(0.390)	(0.343)
Health (hers)			-0.414	-0.0158	-0.309	-0.00458
			(0.295)	(0.266)	(0.293)	(0.265)
Husband OSIC	-0.703**	-0.376	-0.725**	-0.363	-0.671**	-0.326
	(0.307)	(0.273)	(0.308)	(0.274)	(0.306)	(0.275)
Apprentice -- long					1.355***	0.899**
					(0.402)	(0.418)
Apprentice -- short					-0.0577	-0.174
					(0.345)	(0.318)
Informal training					-0.308	-0.417
					(0.352)	(0.318)
Prior factory work					0.0308	0.173
					(0.415)	(0.372)
Single	-0.294	-0.0787	-0.295	-0.0842	-0.286	0.00460
	(0.317)	(0.290)	(0.318)	(0.290)	(0.317)	(0.293)
Married	-0.533*	-0.182	-0.558*	-0.160	-0.380	-0.0834
	(0.313)	(0.294)	(0.315)	(0.297)	(0.317)	(0.300)
Widow	-1.456***	-0.661**	-1.460***	-0.663**	-1.243***	-0.574*
	(0.314)	(0.297)	(0.314)	(0.297)	(0.317)	(0.299)
Trade Controls	N	Y	N	Y	N	Y
Constant	3.515***	4.116***	3.522***	4.105***	3.311***	4.171***
	(0.204)	(0.711)	(0.205)	(0.712)	(0.214)	(0.711)
Observations	278	278	278	278	278	278
R-squared	0.123	0.396	0.123	0.396	0.163	0.414
	Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%					

Note: See text for explanation of Health Issues, Health (other), Health (hers), and the apprenticeship and training variables.
Husband OSIC indicates whether the husband was noted as out of work, sick, or in irregular or casual labor.
Excluded category in relation to Single, Married, Widow is Unknown.

rate; its significance diminishes once trade is controlled for. It appears that in the 1908 data the trade of employment was the most important determinant of wages. Since the important women's clothing and tailoring trade were broken down into finer categories in the 1908 report, it may be that other variables were highly correlated with which branch of the industry a woman was employed in, and that they pick up differences that are not explained by the trade categories in the 1897 report but are in the more specific categories used in the 1908 report. The really interesting underlying question is probably how women were sorted into the different trades; there is a lot of suggestive anecdotal evidence in the reports that they were passed down from mother or father to daughter. In the final two columns the impact of the limited information on prior training and experience is explored; unsurprisingly, having completed a long apprenticeship (over 6 months) is highly positively related to the wage rate. It is less clear how to interpret having completed a short apprenticeship (a few weeks to 2-3 months) or having received informal training relative to the rest of the sample when this information was not provided in most cases.

Because of the greater amount of detailed information provided in the general remarks on each worker, the 1908 report has much better information on household composition and other household earnings -- those of husbands who were in work, working children or in some cases fathers and working siblings.[59] Out of the 446 total, 184 households can be assigned a total size and household income figure with confidence. Table 2.16 shows the distribution of household incomes above and below Rowntree's 1899 minimum standard poverty line.[60] The overall

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[59] Among single women not still living with parents, it was not at all unusual to find two sisters or a sister and brother pair living together.

[60] Adjusted to 1907-8 prices, and according to household size and the numbers of adults and children present -- that is, the minimum standard would be slightly different for a household of six comprised of 2 adults and 4 children and a household of six comprised of 3 adults and 3 children.

Table 2.16: Households Above and Below Rowntree's 1899 "Standard" Poverty Line, 1908

Relation to Poverty Line	Total Household Income	Subtracting Female Worker's Earnings
	Number of Households	
+ 20s. and over	9	1
+ 16s. to 20s.	9	3
+ 12s. to 16s.	11	2
+ 10s. to 12s.	8	1
+ 8s. to 10s.	9	2
+ 6s. to 8s.	9	3
+ 4s. to 6s.	12	4
+ 2s. to 4s.	15	4
+ 0s. to 2s.	13	6
− 0s. to 2s.	21	9
− 2s. to 4s.	17	6
− 4s. to 6s.	13	14
− 6s. to 8s.	12	56
− 8s. to 10s.	7	9
− 10s. to 12s.	10	10
− 12s. and less	10	54
Above, but within 4s.	18 (9.8%)	10 (5.4%)
Below, but within 4s.	38 (20.7%)	15 (8.2%)
Total Households	184	184
Total in Poverty	90 (48.9%)	158 (85.9%)
Average Poverty Gap	5.7s.	9.7s.

poverty rate was an estimated 49%, with about 30% of households within 4s of the poverty line in either direction. This is significantly higher than that found for the working class in any contemporary poverty survey, but they covered the entire working class population, and one would expect the rate to be much higher among households in which women were not just working, but were taking in home work that was widely considered to be at "sweated" rates of pay. The second column of the table subtracts the female worker's income from total household income to recalculate what the poverty rate would have been in the absence of her earnings. This exercise seems almost absurd in this setting, since the focus of the surveys themselves were on female earners, but it does serves to highlight how few of these households had sufficient other sources of income to get along without the woman's earnings -- 85% would have been poor without the home worker's earnings, and they would have been really poor. The poverty gap, or the average distance below the poverty line that poor households sat, would have increased by about 70%. In large part this reflects the large number of women supporting themselves or their households alone, or with very little help -- the large bunching of hypothetically poor households at 6s to 8s below the poverty line represents the number of women who supported themselves entirely by their own earnings, so with no earnings at all would have fallen about 7s below the minimum standard.

Although it was still rare, there was significantly more mention of poor relief in the 1908 report as compared with 1897. This could simply reflect the greater detail generally provided in the 1908 report, but could also be evidence of some increase in the generosity of London parishes in the first decade of the twentieth century, possibly helped by increasing publicity and public discourse relating to the plight of the poor, and of workers in "sweated" trades. Still, only

33 households out of the 446 reported receiving poor relief, while 50 more made specific reference to the fact that they were not receiving poor relief, or were laboring to try to stay out of the workhouse. The average amount they reported receiving was just under 4s per week. In these reports, undertaken in the period just before the implementation of the Liberal Welfare Reforms, the almost complete lack of social benefits stand out. There were no widows and orphans or old age pensions yet in evidence, and no unemployment insurance. Besides private charity, poor relief was it, and it was seldom enough to fully support the widow or sick man's family it went to support. In the very simple regressions estimated in Table 2.17, however, there does appear to be some tentative evidence of a reduction in work hours associated with the receipt of poor relief. It may be, of course, that poor relief was obtained only when the ability to work long hours was curtailed (as by age or illness), but it is also possible that, to a very limited extent, poor relief did allow widows, the old, and even some married women with incapacitated husbands and many children, to reduce their work hours.

Table 2.17: Weekly Hours of Work and Poor Relief, 1908 (OLS estimates)

	(1)	(2)	(3)
Wage Rate	-3.381	-3.935	-3.792
	(0.618)***	(0.744)***	(0.733)***
Poor Relief Y/N	-7.700	-7.253	-7.290
	(4.047)*	(4.289)*	(4.218)*
Husband OSIC			9.835
			(3.266)***
Trade Controls	N	Y	Y
Marital Status Controls	Y	Y	Y
Constant	56.219	61.554	59.822
	(3.007)***	(10.220)***	(10.067)***
Observations	261	261	261
R-squared	0.13	0.19	0.22
	Standard errors in parentheses * significant at 10%; ** significant at 5%; *** significant at 1%		

Note: Dependent variable = number of hours worked per week.
Wage rate is given in pence per hour.
Husband OSIC indicates whether the husband was noted as out of work, sick, or in irregular or casual labor.
Excluded category in marital status controls is Unknown.

V. Conclusion

What really stands out from analysis of these reports is the heterogeneity of these workers -- on average wages certainly appear to have been low, but there were successful women in skilled work earning 20s a week at home as well. There was wide variation not only in wage rates, earnings and hours, but in apparent skill level, family situation, and motivation for working. Contemporaries suggested that women driven into the labor force by immediate household need were forced to take the lowest paid work, whether because they lacked skill and experience or bargaining power in the labor market. While it is difficult to distinguish one explanation from another, I am able to somewhat disentangle the influence of human capital from that of household factors that might have affected bargaining power. The reports contain limited information about prior training and human capital accumulation, and I find evidence that wages were positively related to previous formal training in the form of an apprenticeship. I also find that the wives and daughters of men who were out of the labor force due to unemployment or illness tended to work longer hours at lower wages, and that having a household member who was sick, disabled or out of work exerted downward pressure on a female worker's wage rate. Anecdotal evidence in the reports is also suggestive -- there were indications that women from better off households were able to refuse work they considered to be beneath them, while poorer women spoke of taking what they could get. The conclusion is that, overwhelmingly, female home workers in this time period were motivated by poverty and exhibited labor supply behavior that is consistent with that observed in developing countries today.

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CHAPTER 3

THE TRADE BOARDS ACT OF 1909 AND THE ALLEVIATION OF HOUSEHOLD POVERTY

Abstract

This paper examines the effects of the 1909 Trade Boards Act on women's wage rates and income contributions to poor households. The Act established Boards charged with setting minimum hourly wages in selected low-paid trades, and though the minimum wage rates applied to male as well as female labour, the majority of workers affected by the Boards instituted before the First World War were women. Many of the women whose wages were raised by the Act were the wives and daughters of low-skilled workers, whose increased contributions to household income helped to alleviate their families' poverty, while many others were sole earners who supported children or elderly parents. Our main finding is that the Trade Boards Act would have increased the wages of the women who were affected by it enough to have been effective in reducing household poverty rates.

I. Introduction

> The working classes . . . will not continue to bear, they cannot, the awful uncertainties of their lives. Minimum standards of wages and comfort, insurance in some effective form or other against sickness, unemployment, old age—these are the questions and the only questions by which parties are going to live in the future.
> (Winston Churchill, letter to editor of the *Westminster Review*, 1907)

Between 1906 and 1914 Parliament passed several pieces of social welfare legislation collectively known as the Liberal welfare reforms. These reforms represented a major about-face in British social policy after seven decades of increasing stinginess towards the poor. The timing of their adoption can be explained largely by the increased middle-class knowledge of

workers' economic insecurity, along with the greater willingness of Parliament to act to reduce that insecurity as a result of the increased political voice of the working class.[61]

This paper examines the effects of one of the Liberal welfare reforms, the 1909 Trade Boards Act, on women's wage rates and income contributions to poor households. The Act, adopted by Parliament in response to public pressure, largely from women's groups, to raise the low wages paid in "sweated industries," established Boards to set minimum hourly wages in four trades—ready-made and wholesale bespoke tailoring, paper box-making, chain-making, and machine lace-finishing. It contained a provision enabling the Board of Trade to create additional Boards in trades where wages were "exceptionally low as compared with other employments," and in 1913 Boards were set up in sugar confectionery and food preserving, shirt-making, hollow ware-making, tin box-making, and linen and cotton embroidery (Sells 1923; Hatton 1997). While the minimum wage rates set by Trade Boards applied to male as well as female labour, the majority of workers affected by the Boards instituted before the First World War were women.

Previous studies of the Trades Boards Act have focused on the extent to which women's earnings increased as a result of the implementation of minimum wages, and the effect of these wage increases on women's employment. We also examine these issues, but our main interest is on the effect of women's increased earnings on household income and poverty rates. Many of the women whose wages were raised by the Trade Boards Act were the wives and daughters of low-skilled workers, whose increased contributions to household income helped to alleviate their families' poverty. Many others were sole earners who supported children or elderly parents. The

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[61] The Liberal welfare reforms included the 1908 Old Age Pension Act, the 1909 Labour Exchanges Act, the 1911 National Insurance Act, which established compulsory systems of health insurance and unemployment insurance, and Acts providing free school meals for needy children (1906), school medical inspections (1907), and medical treatment of children (1912). For an in-depth discussion of the Liberal welfare reforms, see Gilbert (1966), Hay (1975), and Fraser (2003). Boyer (2008) examines the political economy of the Liberal welfare reforms.

Trade Boards Act should be judged not by whether it set wages high enough for women to live on their own, but rather by the extent to which the increase in women's earnings reduced household poverty rates.

The paper is divided into two main parts. Section II examines the extent of working-class poverty and its causes from 1899 to 1913. We show that as many as a third of adult male manual workers received wage rates that were too low to enable them to maintain a family consisting of a wife and three school-aged children. Section III examines the contributions of women workers to household income, and offers estimates of the effects of the adoption of minimum wages on household income and poverty rates. We construct a data set consisting of approximately 300 women employed in the tailoring, box making, match-box making, and shirt making trades, obtained from two 1906-08 surveys, and calculate how many of the women were paid wages below the minimum set by the Trade Boards, and, for those below, how much their weekly earnings would have increased in order to bring them up to the minimum. For those cases where we have information on total household income and family size, we determine whether the family lived in poverty, and, if so, the gap between family income and the poverty line. We then estimate, for the families living in poverty, the extent to which the increased income of women resulting from the Trade Boards Act reduced the poverty rate and the intensity of poverty. Section IV summarizes our results and offers some brief concluding thoughts on the political economy of the Trade Boards Act.

II. Working-class Poverty in Edwardian Britain

A wealth of information exists concerning working-class living standards in the two decades leading up to the First World War. The two major sources of data are the Board of Trade's wage

census of 1906, and the poverty surveys undertaken by Rowntree in 1899 and Bowley and Burnett-Hurst in 1912-13.[62] In order to be able to interpret the wage data, we need first to examine the poverty-line estimates constructed by Rowntree and Bowley. Table 3.1 presents two estimates of the poverty line for a family of five. Rowntree (1901) calculated that the weekly expenditures necessary "to provide the minimum of food, clothing, and shelter needful for the maintenance of merely physical health" for a family consisting of a husband, wife, and three children in York in 1899 was 21.67s. (column 1). He stressed that the diet allowed to family members was quite meager, and that the budget was "based on the assumption that *every penny earned by every member of the family* went into the family purse, and was judiciously expended upon necessities" (Rowntree 1901, 111).

Bowley and Burnett-Hurst's (1915, 36-7) "new standard" poverty line, like Rowntree's, estimated the "minimum expenditure needed to maintain physical health." They exclude rent from their minimum standard "on the assumption that in cases of poverty it is unlikely that a family will pay more than the necessary minimum on this form of expenditure" (1915, 81).[63] For the purposes of comparison with Rowntree's poverty line, in Table 3.1 we include 5s. as the typical weekly expenditure on rent for a family of five.[64] While Bowley and Burnett-Hurst's

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[62] Additional useful information is contained in two enquiries into the budgets of working-class families undertaken by the Board of Trade in 1903 and 1904 (Great Britain, Board of Trade 1903; 1905). For a discussion of the Board of Trade budget data, see Gazeley and Newell (2007). Boyer (2004) provides a detailed discussion of working-class living standards in the decades leading up to the First World War.

[63] Bowley and Burnett-Hurst (1915, 37) note that "expenditure on food is sometimes increased by cutting down the expenditure on rent, clothes, and sundries." Families with low incomes, especially those with large numbers of children, often faced a trade-off between expenditures on food and rent. They were forced to choose between poverty and overcrowding.

[64] The typical rental expenditures per week, and the typical size of working-class homes, differed across towns. In Northampton and in Reading, the median weekly rent, for all family sizes, was 6-7s.; in Warrington, it was 4-5s. In Stanley, the median weekly rent was 5-6s., but 31% of households lived in free colliery houses (1915, 19). In order to determine the number of households living in poverty, Bowley and Burnett-Hurst (1915, 81) subtract the amount of rent paid from family income, and then compare income net of rent to their minimum standard.

Table 3.1: Poverty-line Budgets for a Family of Five (shillings per week)

	Rowntree "York" Standard 1899	Bowley New Standard 1912
Food	12.75	14.92
Rent	4.0	5.0[a]
Clothing	2.25	3.08[b]
Fuel	1.83	1.58
Sundries (Total)	0.83	
Total	21.67	24.58
COL Index (1906 = 100)	95.4	108.5
Min. Standard 1906 prices	22.71	22.65
Min. Standard 1912 Prices	24.65	24.58

Sources: Minimum budget data from Rowntree (1901, 110); Bowley and Burnett-Hurst (1915, 82).

Note: The budgets are for a family consisting of a husband, wife, and three children aged 5-14.
In the bottom two rows the three minimum standards have been revalued to take account of price changes over time, using aggregate cost of living data from Feinstein (1991, 171).

[a]Bowley and Burnett-Hurst excluded rent in their estimate of a minimum standard. However, their housing data suggests that the typical family of five paid rent of 5s. per week.
[b]Bowley and Burnett-Hurst's estimate for clothing includes sundries.

estimates are calculated somewhat differently from Rowntree's, when adjusted to take account of differences in prices across years they yield virtually identical necessary minimum weekly expenditures for 1906 and 1912.

Table 3.2 presents the distribution of weekly wage rates for adult males in five towns surveyed by Rowntree and Bowley and Burnett-Hurst—York, Reading, Northampton, Warrington, and Stanley. About one-quarter of York workers in 1899 were paid weekly wages below 21.67s., the minimum standard to support a family of five. Wage rates varied sharply across the four towns studied by Bowley and Burnett-Hurst. The share of adult males with full-time weekly earnings below 24s. was 50.5% in Reading, 27% in Northampton, 32% in

Table 3.2: Weekly Wages of Adult Males -- Five Towns, 1899-1913

	Approximate Percentage of Adult Males in each category				
Weekly wage	**York 1899**	**Reading 1912**	**Northampton 1913**	**Warrington 1913**	**Stanley 1913**
under 20s.	10.0	15.0	13.0	3.5	4.0
20-22s.	16.0	25.0	7.0	15.0	2.0
22-24s.	10.0	10.5	7.0	13.5	3.0
24-26s.	13.0	17.0	9.0	17.0	2.0
26-28s.	6.0	5.0	7.0	6.0	7.0
28-30s.	5.0	2.5	8.0	7.0	7.0
30-31s.	25.0	11.0	22.0	7.5	7.0
31-35s.	6.0	4.0	9.0	7.0	21.0
35-40s.	4.0	6.0	8.0	12.5	19.0
40s. and over	5.0	4.0	10.0	11.0	28.0
Under 24s.	36.0	50.5	27.0	32.0	9.0
24-30s.	24.0	24.5	24.0	30.0	16.0
30s. and over	40.0	25.0	49.0	38.0	75.0

Source: Bowley and Burnett-Hurst (1915, 33).

Warrington, and 7% in Stanley (the poverty line for a family of five was 24.58s. in 1912). For the five towns combined, somewhere between a quarter and a third of adult males did not earn enough to support a wife and three school children.

Rowntree (1901, 133) concluded from his survey of York that the going wage rate for unskilled labour was "insufficient to . . . maintain a family of moderate size in a state of bare physical efficiency." Wage estimates for adult male unskilled workers obtained from the Board of Trade's wage census indicate that this was still the case in 1906. Table 3.3 shows the average annual earnings and weekly wages for adult males in 22 unskilled occupations. The average full-time weekly wage was less than 22.65s. (the poverty line for a family of five in 1906) in 13 of the 22 occupations. Bowley (1919, 28-30) concluded that, when calculating annual earnings, the estimate reached by multiplying normal weekly wages by 52 should be adjusted downward

Table 3.3: Earnings of Adult Male Unskilled Workers, 1906

Occupation	Full-time Annual Earnings (£s)	Adjusted Annual Earnings (£s)	Full-time Weekly Income (s.)	Adjusted Weekly Income (s.)
Cotton	52.7	49.0	20.3	18.9
Textile bleaching, printing, etc.	52.4	48.7	20.2	18.7
Bricklayer's labourers	60.9	56.6	23.4	21.8
Builders' labourers	62.8	58.4	24.2	22.5
Excavators & labourers	53.9	50.1	20.7	19.3
Sawmilling, machine joiners	54.8	51.0	21.1	19.6
Sweepers & Scavengers	58.9	54.8	22.7	21.1
Yardmen & General labourers	59.4	55.2	22.8	21.2
Road labourers	41.8	38.9	16.1	15.0
Gas Supply	62.2	57.8	23.9	22.2
Water Supply	59.6	55.4	22.9	21.3
Tramway & Omnibus Service	65.6	61.0	25.2	23.5
Iron & Steel	59.8	55.6	23.0	21.4
Engineering & Boilermaking	57.6	53.6	22.2	20.6
Ship & Boatbuilding	54.4	50.6	20.9	19.5
Railway Carriage Building	57.6	53.6	22.2	20.6
Railway Porters (loading)	50.1	46.6	19.3	17.9
Engine Cleaners	52.4	48.7	20.2	18.7
Permanent way labourers	56.3	52.4	21.7	20.1
Chemical Manufacture	55.7	51.8	21.4	19.9
Grain Milling	50.3	46.8	19.3	18.0
Brewery	59.1	55.0	22.7	21.1

Source: Wage data reported in Routh (1965, 96-7), obtained from Great Britain, Board of Trade, *Earnings and Hours of Labour of Workpeople of the United Kingdom*, Parts I-VIII (1909-13).

Note: The columns labeled adjusted earnings and wages include a downward adjustment of 7% to take account of unemployment and sickness. See Bowley (1919, 28-30).

by 7% to take account of income loss due to unemployment and sickness. When this is done (column 4), the "typical" weekly wage exceeded the poverty line for a family of five in only one occupation, tramway and omnibus service.

The estimates in Tables 3.2 and 3.3 are for adult male earnings. Bowley and Burnett-Hurst (1915, 28-31) found that wives or children were employed in 41% of working-class households in Reading, 45% in Warrington, 51% in Northampton, and 31% in Stanley. Table 3.4 presents their estimates of the number of households with incomes above and below the poverty line for the towns in their survey. For the four towns combined, the share of households with incomes below the poverty line was 13.6%. Poverty rates varied significantly across towns, being 23.2% in Reading, 12.8% in Warrington, 8.2% in Northampton, and 5.4% in Stanley. An additional 10.9% of working-class households had incomes above but within 4s. of the poverty line. The bottom row of Table 3.4 shows that about one-third of those households living in poverty had incomes that were within 3s. or less of the poverty line. That is, a small increase in weekly wages could have significantly reduced household poverty rates.

In 1904 the Board of Trade conducted a survey of nearly 2,000 working-class households living in urban districts. Gazeley and Newell (2007) estimate the extent of poverty among the 990 households with complete data, using Bowley's new standard poverty line adjusted to 1904 prices, and find that 12.1-12.3% of the households had incomes below the poverty line.[65] Fully 40% of households headed by unskilled workers were living in poverty. Like Bowley and Burnett-Hurst, they also find that a large number of households had incomes slightly above the poverty level, so that "a fairly minor increase in the generosity of the poverty definition would

[65] Using Rowntree's York standard poverty line, the share of working-class households living in poverty increases to 16.1% (Gazeley and Newell 2007, 16).

Table 3.4: Households above and below Bowley and Burnett-Hurst's "New Standard" Poverty Line -- Four Towns, 1912-13

	Number of Households				
Relation to Poverty Line	**Reading**	**Warrington**	**Northampton**	**Stanley**	**Four Towns**
+ 8s. and over	225	378	565	175	1,343
+ 6s. to 8s.	52	39	23	6	120
+ 5s. to 6s.	27	16	5	0	48
+ 4s. to 5s.	19	22	0	5	46
+ 3s. to 4s.	24	15	0	0	39
+ 2s. to 3s.	31	25	0	1	57
+ 1s. to 2s.	28	19	6	1	54
+ 0s. to 1s.	50	15	17	3	85
+ Amt unknown	22	29	20	0	71
– 0s. to 1s.	6	6	8	1	21
– 1s. to 2s.	22	14	9	0	45
– 2s. to 3s.	13	12	4	2	31
– 3s. to 4s.	16	13	9	1	39
– 4s. to 5s.	16	4	6	0	26
– 5s. to 6s.	13	8	3	0	24
– 6s. to 7s.	6	5	2	1	14
– 7s. to 8s.	10	4	2	1	17
– 8s. and over	37	5	4	3	49
– Amt unknown	5	11	10	2	28
Total Households	622	640	693	202	2,157
Total in Poverty	144	82	57	11	294
Share in Poverty	23.2%	12.8%	8.2%	5.4%	13.6%
Above, but within 2s. of Poverty line	78 12.5%	34 5.3%	23 3.3%	4 2.0%	139 6.4%
Above, but within 4s. of Poverty line	133 21.4%	74 11.6%	23 3.3%	5 2.5%	235 10.9%
Below, but within 3s. of Poverty line	41 6.6%	32 5.0%	21 3.0%	3 1.5%	97 4.5%

Source: Bowley and Burnett-Hurst (1915, 88, 134, 157, 172).

result in a large increase in the poverty rate" (Gazeley and Newell 2007, 16).

In sum, 12-15% of urban working class households had incomes below the poverty line from 1899 to 1914. The main cause of poverty in these households was the low wage rates paid to male household heads. In the words of Bowley and Burnett-Hurst (1915, 41-2), a "great part" of poverty was "not accidental or due to exceptional misfortune, but a regular feature of the industries of the towns concerned. . . . to raise the wages of the worst-paid workers is the most pressing social task with which the country is confronted today."

Living in poverty had serious health consequences for both children and adults. Rowntree (1901, 198-216) found a strong negative correlation between health and poverty among school children in working-class York. Maud Pember Reeves (1913, 193-4) also concluded that poverty led to a low standard of health for children from her study of poor families in Lambeth, south London. Poor health for children often translated into poor health for adults. The British public became keenly aware of the adverse health consequences of low living standards during the Boer War of 1899-1902, when approximately 30% of recruits were rejected by medical officers because they did not meet "the army's already shockingly low physical standards" (Searle 2004, 305).[66] The alarming number of rejections led the government in 1903 to create the Interdepartmental Committee on Physical Deterioration, whose Report of the following year provided additional evidence of "a mass of poverty, sickness, and squalor" in British cities (Searle 2004, 375). Sir William Taylor, the Director-General of the Army Medical Service, attributed "the impairment of vigour and physique among the urban poor" to "food insufficient in quantity and probably poor in quality, . . . defective housing, overcrowding and

[66] These numbers are an underestimate of the share of recruits who were deemed physically unfit, because they do not include those who were rejected by the recruiting officers as unfit for service and therefore were never medically inspected.

insanitary surroundings." The root cause of all of these factors was low wages.[67]

The increasing middle-class knowledge of the economic plight of low-skilled workers, along with the increasing political voice of the working class, led to the adoption of the Liberal welfare reforms, which attacked poverty and economic insecurity in several ways. The 1906 Education (Provision of Meals) Act and the 1907 Education (Administrative Provisions) Act improved health and nutrition among needy children by establishing the provision of free school meals to poor children and implementing school medical inspections. The 1908 Old Age Pension Act reduced poverty among the elderly by providing weekly pensions to persons aged 70 and over whose annual income was less than £21. The 1911 National Insurance Act reduced economic insecurity associated with time lost from work by establishing a system of compulsory health insurance covering all manual workers and unemployment insurance for workers in a limited number of industries.

The 1909 Trade Boards Act was the only reform that addressed the problem of low wages. Despite the fact that Rowntree, Bowley, and the 1906 wage census had demonstrated the inadequacy of wages for low-skilled adult male workers, Parliament was unwilling to adopt a national minimum wage. The Trade Boards Act covered a limited number of industries and applied mainly to females, who typically were secondary workers in poor households.

III. The Effect of the Trade Boards Act on Women's Wages and Family Poverty

The Trade Boards Act was an experiment, designed to regulate pay in "sweated" industries. It initially covered only four trades—ready-made and wholesale bespoke tailoring, paper box-making, chain-making, and machine lace-finishing—in which the "very low rate of wages was

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[67] Taylor's memorandum is in Appendix 1 of the Report of the Interdepartmental Committee on Physical Deterioration, Vol. I, pp. 96-7.

notorious" (Smith 1914, 609). Some 250,000 workers were employed in these trades, including approximately 175,000 women. The women covered by the initial boards represented 3.7% of the total female workforce in 1911, and 5.2% of females employed outside of domestic service or agriculture.[68]

The Act gave the Board of Trade the authority to create additional boards in trades where wages were "exceptionally low as compared with other employments." The Board of Trade received "many suggestions" from workers, reformers, and employers for the establishment of new boards, and in May 1913 boards were set up to cover sugar confectionery and food preserving, shirt-making, hollow ware-making, tin box-making, and linen and cotton embroidery. In determining which trades to include, the Board of Trade was guided largely by information on women's wages contained in the 1906 wage census. G. S. Barnes, Second Secretary to the Board of Trade, testified before the Select Committee on the Trade Boards Act Provisional Orders Bill that "the first step the Board of Trade took was . . . to examine the census of wages of 1906 . . . Our first object was to find out the lowest paid trades."[69] The workforce of each of the trades chosen was dominated by women. The number of women employed in these trades, as of 1911, was slightly more than 150,000, bringing the total number of women covered by trade boards in 1914 to about 325,000, nearly 10% of females employed outside of domestic service or

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[68] In 1911, there were approximately 127,100 women employed in tailoring, 21,400 in machine-made lace making, 26,500 in paper-box making, and 2,100 in chain making. The total number of employed females aged 10 and over in 1911 was 4,830,724. The number of females employed outside of domestic service or agriculture was 3,400,654. Data on female employment were obtained from the *1911 Census of England and Wales*, vol. X. *Occupations and Industries* (Parl. Papers 1913: LXXVIII, 2-5).

[69] Information on how the Board of Trade proceeded in determining how to extend the number of trades covered is contained in the *Special Report from the Select Committee on the Trade Boards Act Provisional Orders Bill* (Parl. Papers 1913: XIV). The quote by G. S. Barnes is from pages 50-1.

agriculture.[70]

Previous analyses of the effect of the Trade Boards Act on women's wages have focused on comparing the minimum rates set by the first Trade Boards with wage data from the Board of Trade's 1906 wage census. For each of the industries covered by the Act, the initial rates for women set by the Trade Boards exceeded the average weekly wage of female workers in 1906 (Sells 1923, 80). While it is not possible to determine precisely how many women experienced wage increases as a result of the Act or the magnitude of the average increase in their weekly income, we can get some idea of the Act's effects on women's wages from data for the chain-making, tailoring, and box-making trades reported by Tawney (1914; 1915) and Bulkley (1915). Tawney (1915, 77-8), using wage data for 11,372 women employed in ready-made tailoring from the 1906 wage census, estimated that at least 38% of women engaged in tailoring should have received a wage increase as a result of the establishment of minimum rates. Roughly a third of the women who received increases had their weekly wages raised by up to 1s.6d. per week, another third received an additional 1s.6d. to 2s.6d. per week, and the final third received an additional 2s.6d. to 4s. per week. Bulkley (1915, 32-3) estimated that about 52% of the 2,934 women employed in box-making in the 1906 wage census should have had their wages raised. Because the majority of women in tailoring and box-making worked on piece rates, the new minimum rates also caused some share of those whose weekly incomes were above the minimum

[70] In 1911, there were approximately 32,700 women employed in sugar confectionery and food preserving, 80,300 in shirt-making, 29,400 in hollow-ware making, and 9,800 in tin box making. The linen and cotton embroidery board was established in Ireland, and did not affect English workers. Data on female employment were obtained from the *1911 Census of England and Wales*, vol. X. *Occupations and Industries* (Parl. Papers 1913: LXXVIII, 2-5).

set by the Board to receive wage increases.[71]

Tawney and Bulkley also attempted a more direct estimation of the effects of the Trade Boards on wages and employment in the tailoring and box-making trades by surveying firms and workers after the minimum wage rates took effect. Tawney (1915, 67-9) found that out of 151 tailoring firms surveyed, 47 reported that both the weekly earnings and piece rates of women had been raised and 28 that time rates or weekly earnings had increased but without an associated rise in piece rates. Of 177 workers who gave evidence on wages, 113 reported no change, 35 an increase in piece rates and 20 an increase in time rates. Sixty-five out of the 108 box-making firms interviewed by Bulkley (1915, 28) reported that the average earnings of their workers had increased.[72] Neither found evidence that the imposition of the minimum rates had significant negative employment effects. Bulkley (1915, 59) found that 32 of the 96 box-making firms that gave information reported making dismissals, totaling 300 women out of 6800 (4.4%), while Tawney (1915, 175-6) reported that 36 of 96 tailoring firms admitted to dismissing one or more adult worker as a result of the minimum wage, but that only a few of those had dismissed more than a very small proportion of their workers.

The conclusions of these contemporary investigations into the effects of the Trade Boards seem to indicate, then, that the minimum wages set were successful in increasing the incomes of a significant proportion of women in the industries covered, with minimal negative effects on

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[71] A lack of data on home and outworkers in the 1906 wage census prevented Tawney (1914) from making a similar analysis for the chain-making industry, but he does note piece-rate increases of between 20% and 67% and estimates that between 1910 and 1913 the proportion of female workers earning over 7s. a week increased from less than 15% to more than 60% (Tawney 1914, 99, 131).

[72] It is difficult to infer much from these figures, however, without knowing what proportion of the firms had already been paying the minimum wage or over and how many of the workers had already been receiving higher time wages or sufficient piece rates; Tawney (1915, 69-71) notes that most workers in northern tailoring firms were earning more than the minimum rate to begin with, and that most of the 47 firms that did increase wages were located in the south.

employment.[73] No attempt has been made, however, to measure the impact of the Trade Boards minimum rates more widely on household incomes and poverty rates. The increase in wage rates would have affected not only single women working to support themselves, but also a large number of widows supporting children and the wives and daughters of low-skilled male workers working to supplement family income. Thus the increased contributions to household income that the Trade Boards allowed many women to make could have had a significant role in alleviating poverty among working-class families which depended on an insufficient or irregular male wage as well as among those which depended entirely on female wages.

While there is no one great source of family incomes or budgets for the Edwardian period, there were a number of surveys of women workers in various industries which provide information not only about the worker's occupation, working conditions and weekly wage but also frequently about her family situation and the family income. We have compiled a data set of just over 300 women in the tailoring, box-making and shirt-making trades from a 1908 survey of women in the clothing trades published by Adele Meyer and Clementina Black in *Makers of Our Clothes* (1909) and from a 1906 survey of *Home Industries of Women in London* published by

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[73] We would prefer to be able to estimate and correct for the employment effects of the wage increase, rather than rely on the testimony of these admittedly less-than-impartial contemporary observers. However, an extensive modern literature reveals that the imposition of a minimum wage does not necessarily have a strong negative impact on employment. Manning (2003) details the conditions under which minimum wages could have negative, neutral or positive effects on employment in a monopsonistic setting, and argues convincingly that there are many situations in which employers could be expected to command some degree of monopsony power over the labor market. Manning's two major features of monopsony, that employers set wages and that labor supply to the firm is not perfectly elastic, could plausibly have applied to the largely female and home-working labor markets covered by the Trade Boards Act. Both Tawney (1915) and Blackburn (2007) suggest that women working in the sweated trades acted as wage takers and were often, in Tawney's words, "obliged to work on any terms that they can get" (Tawney 1915, 115). Thus there are grounds for believing the optimistic assessments of Tawney and others, especially since the minimum wages set in the industries we focus on in this paper, tailoring, shirt-making, and box-making, represented relatively modest increases of 5-6% on the 1906 wage averages in those industries. Dickens, Machin and Manning (1999) find that the British Wages Councils of the 1970s and 1980s had no negative effect on employment, and Stewart (2004) finds no overall employment effect of the UK's national minimum wage. Card and Krueger (1995) summarize the debate over the effect of the minimum wage in the US, concluding from their own work that it has no negative and sometimes even a positive effect on employment. For a criticism of Tawney's analysis of the effects of the Trade Boards Act, see Blackburn (1999; 2007).

the Women's Industrial Council in 1908. *Makers of Our Clothes* was the product of a survey of several hundred women working in the tailoring, dressmaking, shirt-making and underclothing industries in London, and was undertaken by Meyer and Black in support of the anticipated Trade Boards legislation. Detailed descriptions of individual cases in the text along with about 50 tabulated cases in the back of the book yield a total of 113 cases in which a reasonable amount of information is known about the woman in question and her family situation, including 44 women in the tailoring trade and 15 in shirt-making.

The 1908 report on *Home Industries of Women in London* was a follow up to an 1897 investigation of the same name undertaken by the Women's Industrial Council, an organization founded in the 1880s dedicated to investigating the pay and working conditions of women workers. Unfortunately, neither report gives much detail about the reasons for the surveys or how they were undertaken, simply presenting tables which summarize the type of work, piece rates and average earnings, hours worked, working conditions, marital status and family situation of each working woman surveyed. The 1908 report contains a total of 446 cases of women working in a wide array of home industries, including 76 tailoresses, 107 box makers, 24 matchbox makers and 43 shirt makers.[74] Both the *Makers* and the *HIWL* surveys focus exclusively on female workers in trades that were known to have been especially low-paid, and the investigations largely were meant to shed light on the problem of women engaged in the "sweated" industries, so they cannot be taken as broadly representative of the working classes in London. They do, however, provide a unique opportunity to assess the earnings, work patterns and family situations of precisely the group of women that the Trade Boards Act was aimed at

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[74] Other industries represented include shoes and boots, brush making, ties and belts, artificial flowers, embroidery and bead work, glove-making, underclothing, corsets and millinery, as well as mantle-making, dress-making, and blouse-making, which were not covered by the 1909 Act since tailoring was restricted by definition to men's clothes.

before the minimum wages were implemented, and then to estimate what the effects of the legislation might have been on their wages and family incomes.

Table 3.5 presents the marital status, average wages and working hours of the women in the tailoring, box-making and shirt-making industries in the two surveys, as well as the corresponding 1906 wage averages. The average weekly wage of women in the tailoring industry was 12.3s. in the *Makers* sample and 10.1s. in the *HIWL* sample, which compares with an average of 12.9s. in ready-made tailoring in the 1906 wage census. Averages for shirt-makers were 9.8s. per week in *Makers* and 7.6s in *HIWL*, as compared to 13.3s. in the 1906 wage census (the category also included blouse and underclothing making, neither of which were covered by the shirt-making Trade Board). It is not surprising that the wages of the women surveyed were a bit lower than those reported in the 1906 wage census since the census figures refer to full time earnings and the census did not include home workers, who tended to earn less than workers in factories and workshops. There are only 15 shirt makers in the *Makers* data, but the average wage of the seven who worked in factories was 12.1s. per week, while that of the eight who worked at home was 7.8s. There was little difference, however, between the weekly wages of home and factory workers in the better-paid tailoring industry—12.0s. compared to 12.5s. Average wages of box makers in the *HIWL* data stood at 6.1s. per week, significantly lower than the 12.25s. per week average for full-time factory workers quoted by Sells (1923, 80) from the 1906 wage census. With the exception of the women in tailoring in the *Makers* sample, average hourly wages were lower than the minimums set by the Trade Boards. Working hours averaged a bit over 10 hours a day and around 40 hours a week—women tended to work long hours when they had work, but frequently did not have enough work to fill a full week.

Table 3.5: Descriptive Statistics: Workers in the Tailoring, Box-making and Shirt-making Trades in *Home Industries of Women in London* and *Makers of Our Clothes*

	Tailoring *HIWL*	**Tailoring *Makers***	**Box-making *HIWL***	**Shirt-making *HIWL***	**Shirt-making *Makers***
Total	76	44	131	43	15
Single	23	22	8	12	7
Married	26	12	96	21	5
Widowed	26[a]	10	27	9[a]	3
Average Weekly Wage[b]	10.1s. (7.60)	12.26s. (6.36)	6.13s. (2.48)	7.56s. (6.19)	9.8s. (4.44)
Average Wage 1906[c]	12.92s.	12.92s.	12.25s.	13.33s.	13.33s.
Average Hourly Wage[d]	0.267s. (0.184)	0.298s. (0.145)	0.147s. (0.050)	0.222s. (0.103)	0.261s. (0.151)
Reported Daily Hours[e]	11.1 (3.42)	10.1 (1.20)	10.6 (3.73)	9.5 (4.20)	10.1 (2.04)
Calculated Weekly Hours[f]	39.8 (17.51)	42.8 (18.9)	40.8 (13.5)	34.9 (22.0)	41.9 (20.5)

Sources: Women's Industrial Council (1908) and Meyer and Black (1909).

Note: Standard deviations in parentheses

[a]There are two cases in which the marital status of the woman is not known.
[b]Average weekly wages for *HIWL* based on 71 cases in tailoring, 116 in box-making and 38 in shirt-making; average weekly wages for *Makers* based on all cases.
[c]Average wages of full-time workers employed in factories and workshops in the last pay week of September 1906, taken from the *Report of an Enquiry by the Board of Trade into the Earnings and Hours of Labour of Workpeople of the United Kingdom*, cited in Sells (1923: 80).
[d]Average hourly wages for *HIWL* based on 65 cases in tailoring, 68 in box-making and 32 in shirt-making; average weekly wages for *Makers* based on 28 cases in tailoring and 9 cases in shirt-making.
[e]Reported daily hours are those recorded for some women in the data sources – in the *HIWL* data, the averages are based on 31 cases in tailoring, 34 in box-making and 15 in shirt-making. In the *Makers* data, they are based on 23 cases in tailoring and 6 in shirt-making.
[f]Calculated weekly hours were derived for each case by dividing the weekly wage by the hourly wage.

What drove these women to work? In the vast majority of cases they appear to have been supporting the household or supplementing the income of a husband whose wages were insufficient to support the family. In about a third of each sample, the household depended entirely on the earnings of the surveyed woman. The majority of single women and widows were the primary earners in their households, sometimes with the help of a sibling or child. Of the 160 married women in the two samples, 25 supported the household on their own, 25 supported the household with the help of one or more working children, and the rest supplemented the earnings of their husbands. About 60% of the 160 husbands are known to have been sick, unemployed or engaged in casual or irregular labour, and another 13% of the 143 in the *HIWL* sample were described simply as "in work," which could be interpreted as referring to a casual or irregular labourer who was currently working. Of the 89 husbands whose earnings, or lack thereof, were recorded, 50 were earning nothing at the time of the survey. Only 15 of the 39 with positive earnings had incomes high enough to support their families outside of poverty; their average income exceeded Rowntree's poverty line by just over 4s. per week. The remaining 25 husbands, while employed, had weekly incomes that on average fell short of the poverty line by nearly 11s.

It is possible to calculate total household income in 28 of the 59 cases in the *Makers* data and in 117 of the 250 cases in the *HIWL* data. Table 3.6 presents information about household composition and average incomes for these cases, including a comparison of the households of single, married and widowed women. The 117 households of known income in the *HIWL* data range in size from one to nine people, nearly half of which were dependent solely on the wage of the worker surveyed. These include 25 cases of a single woman or widow working to support

Table 3.6: Characteristics of the 145 Households for Which Total Family Income is Known

	***HIWL* survey**	***Makers* survey**
Total Number of Households	117	28
Worker is Sole Earner	57	18
Household Income	17.8s. (11.42)	19.5s. (14.2)
Proportion Contributed	61%	70%
Number of Earners	1.8	1.5
Household Size	3.5	3.1
Number Single	25	6
Worker is Sole Earner	19	5
Household Income	19.9s. (13.2)	16.8s. (7.5)
Proportion Contributed	87%	89%
Number of Earners	1.4	1.2
Household Size	1.8	2.3
Number Married	58	10
Worker is Sole Earner	17	4
Household Income	21.2s. (11.5)	20.1s. (9.7)
Proportion Contributed	46%	51%
Number of Earners	2.1	1.7
Household Size	4.7	5.0
Number Widowed	34	12
Worker is Sole Earner	21	9
Household Income	10.5s. (5.1)	20.4s. (19.7)
Proportion Contributed	67%	76%
Number of Earners	1.4	1.4
Household Size	2.6	2.2

Sources: Women's Industrial Council (1908) and Meyer and Black (1909).

Note: Standard deviations in parentheses.

herself, 17 married women supporting husbands and up to four children, 10 widows supporting elderly parents and up to four children, and five single women living with and supporting parents. The average wage of the single and widowed women supporting only themselves was 13.7s. per week, and 10 of the 25 earned less than Rowntree's rather stringent 1899 poverty line for a single-person household of 7s. (adjusted to 7.33s. at 1906-8 prices). The average wage of the married, widowed and single women supporting others was only 9.3s. per week, and 28 of those 32 families fell below Rowntree's standard. That is, nearly 90% of households with more than one person dependent entirely on the income of a female home worker were living in poverty.

Of the 28 *Makers* cases, 18 households were entirely dependent of the earnings of the woman worker, including seven single women and widows supporting only themselves on an average of 14.4s. per week, and eleven married, single and widowed women supporting up to four dependents—husband, children, siblings and parents—on an average of 13.5s. per week. None of the seven self-supporting women had weekly earnings that fell below Rowntree's poverty line, but six out of the eleven families that depended on the wage of the wife, mother or daughter did. In six of the other 10 cases in the *Makers* data, a wife supplemented the earnings of her husband, in three a widow was aided by one or more working children and in one a single woman supported her mother with the help of a brother. The average weekly income of these households, which ranged in size from two to eight members, was 29.6s., and five of them fell below the poverty line. The surveyed wife, mother or daughter contributed an average of 37% of the total family income.

Of the 60 multi-earner families in the *HIWL* data, in 29 cases a wife supplemented her

husband's income, in 12 a wife supported the family with the help of one or more working children, in 13 a widow supported the family with the help of children or poor relief and in the remaining six a single woman lived with her mother or siblings. The surveyed wife, mother or single woman contributed an average of 30% of the total household income. Average household income was 24s. per week and half of the 60 families had incomes below Rowntree's 1899 standard. Of those families above the standard, half would have fallen below the poverty line without the income of the surveyed wife, mother, daughter or sister.

Table 3.7 presents a counterpart to Table 3.4 using the new data on the households of working women. The bottom four rows (columns 1-3) summarize the poverty status of the 145 families whose total household income we know. Overall, 68 of the 117 households in the *HIWL* sample (58%) and 11 of the 28 households in the *Makers* sample (39%) had incomes below Rowntree's poverty standard. The difference between the two samples appears to be mainly attributable to a difference in pay between the clothing and box-making trades, rather than to a difference between home and factory workers. In the *Makers* data, the families of the 20 home workers and 8 factory workers in the tailoring and shirt-making industries have virtually identical poverty rates of 40% and 37.5% respectively, not much lower than the 47% rate for the families of the tailoresses and shirt-makers in the *HIWL* data. The incomes of 69% of the households of box- and matchbox-makers, however, fell below Rowntree's standard. For all households in the data the poverty rate of 54.5% is quite high relative to those found by Rowntree's and Bowley and Burnett-Hurst's surveys.

Table 3.7 also presents the distribution above and below the poverty line of the households of known total income. The 68 households in the *HIWL* sample with incomes less

Table 3.7: Households Above and Below Rowntree's 1899 "Standard" Poverty Line

	Number of Households					
Relation to Poverty Line	***HIWL***	***Makers***	**Total**	***HIWL* TB Effect**	***Makers* TB Effect**	**Total TB Effect**
+ 20s. and over	5	1	6	9	1	10
+ 16s. to 20s.	5	3	8	8	3	11
+ 14s. to 16s.	3	-	3	5	2	7
+ 12s. to 14s.	3	2	5	6	2	8
+ 10s. to 12s.	4	1	5	7	1	8
+ 8s. to 10s.	6	1	7	10	1	11
+ 6s. to 8s.	6	2	8	4	2	6
+ 4s. to 6s.	6	2	8	7	3	10
+ 2s. to 4s.	6	2	8	17	3	20
+ 0s. to 2s.	5	3	8	4	2	6
– 0s. to 1s.	4	2	6	6	1	7
– 1s. to 2s.	9	-	9	2	-	2
– 2s. to 3s.	6	-	6	6	1	7
– 3s. to 4s.	7	1	8	5	1	6
– 4s. to 6s.	10	3	13	4	2	6
– 6s. to 8s.	11	2	13	11	1	12
– 8s. to 10s.	6	-	6	4	1	5
– 10s. to 12s.	8	-	8	2	-	2
– 12s. and over	7	3	10	-	1	1
Above, but within 4s. of poverty line	11 9.4%	5 17.9%	16 11%	21 17.9%	5 17.9%	26 17.9%
Below, but within 4s. of poverty line	26 22.2%	3 10.7%	29 20%	19 16.2%	3 10.7%	22 15.2%
Total Households	117	28	145	117	28	145
Total in Poverty	68	11	79	40	8	48
Share in Poverty	58.1%	39.3%	54.5%	34.2%	28.6%	33%
Average Poverty Gap	6.2s.	7.7s.	6.4s.	4.6s.	6.1s.	4.9s.

Sources: Women's Industrial Council (1908) and Meyer and Black (1909).

Note: In each case s. denotes shillings. All amounts given are per week.

than Rowntree's standard fell below the poverty line by an average of 6.2s., and the eleven poor households in the *Makers* sample fell below by an average of 7.7s. Nearly one-third of the 145 households with known incomes had weekly earnings within 4s. of the poverty line. Even a relatively small increase in women's earnings could have had a significant effect in reducing poverty rates and alleviating the intensity of poverty for many of the households in the sample.

What impact did the minimum wages set by the Trade Boards have on the incomes of these women and their families? Unfortunately, there are no known surveys of women in covered trades from after the implementation of the minimum wages that would allow us to make a direct calculation of the Act's effects. We can, however, use data on their wage rates from just before the Act was passed to calculate what the effect of the minimum rates would have been on the wages and family incomes of the women who were affected by them. A minimum rate of 3d. per hour was set in the box-making industry and a minimum of 3¼d. per hour was set in the ready-made tailoring industry in 1913. In July 1915, the shirt-making Trade Board set an hourly minimum rate of 3½d. (Sells 1923, 80-1). Panel A of Table 3.8 compares these minimum rates with the average weekly and hourly earnings of the women in each industry whose hourly wages fell below the minimums, and then presents the results of calculating the effect that an increase in their hourly rates up to the Trade-Board-determined level would have had on their weekly earnings. Raising the hourly wages of these women would have increased their weekly earnings by an average of 4.2s. in the *Makers* data and 4.3s. in the *HIWL* data. These figures do not include those women who earned a higher hourly rate than the minimum and whose wages would thus not have been directly affected by the Trade Board regulations, but these were in the minority in the data—186 of the 250 women in the *HIWL* data would have had a wage increase,

Table 3.8: The Effects of the Trade Boards Acts on Weekly Wages

A. Average wages and Trade Board minimum wages by trade					
	Tailoring *HIWL*	**Tailoring *Makers***	**Box-making *HIWL***	**Shirt-making *HIWL***	**Shirt-making *Makers***
Total Number	76	44	131	43	15
Percent Affected By TB Min. Wage[a]	66%	34%	97%	68%	73%
TB Hourly Min. Wage	0.271s.	0.271s.	0.25s.	0.292s.	0.292s.
Avg. Weekly Wage[b]	6.5s.	9.8s.	6.0s.	6.5s.	8.3s.
Avg. Hourly Wage	.166s.	.197s.	.147s.	.175s.	.210s.
Avg. Weekly Hours	39.9	50.8	40.8	38.2	44.3
Trade Board Effect[c]	4.3s. (3.06)	3.9s. (3.14)	4.2s. (2.18)	4.7s. (4.41)	4.7s. (6.43)
Trade Board Effect (All)[d]	2.8s. (3.22)	1.3s. (2.60)	4.1s. (2.26)	3.2s. (4.24)	3.4s. (5.84)

B. Sub-groups within the Tailoring and Box-making trades				
	Tailoring *HIWL*		**Box-making *HIWL***	
	Trousers and Coats	**Waistcoats**	**Matchbox makers**	**Other Box makers**
Total Number	53	23	24	107
Percent Affected By TB Min. Wage	88%	14%	100%	97%
Avg. Weekly Wage[e]	6.7s.	18.3s.	5.5s.	6.3s.
Avg. Hourly Wage	0.178s.	0.455s.	0.110s.	0.159s.
Trade Board Effect	4.5s. (3.06)	1.4s. (1.44)	6.4s. (1.84)	3.7s. (1.92)
Trade Board Effect (All)	3.9s. (3.22)	0.2s. (.671)	6.4s. (1.84)	3.6s. (2.0)

Sources: Women's Industrial Council (1908) and Meyer and Black (1909).

Note: Standard deviations in parentheses.

[a]Percent Affected by TB Min. Wage is the proportion of women in each industry whose hourly wage fell below the minimum set by the Trade Board for that industry and who thus could have expected an increase in wages to the minimum level.

Table 8 (continued)

[b]Average Weekly Wages, Average Hourly Wages and Average Weekly Hours are all calculated for the subset of women in each industry who would have been affected by the minimum wages, as defined above; these averages for the whole sample are reported in Table 5.
[c]We calculate the Trade Board Effect for each woman whose hourly wage fell below the Trade Board minimum in her industry by subtracting her hourly wage from the Trade Board minimum and multiplying the difference by her hours worked per week. The result is, for each worker, the *additional* amount in shillings per week that she would have earned had her hourly wage been raised to the relevant Trade Board minimum rate, controlling for hours worked. We calculate hours worked per week for each woman observed by dividing her weekly wage by her hourly wage. In the cases where no hourly wage could be derived from the data, the average for the other women in the trade in the same survey was assigned (separately for trouser and coat makers and waistcoat makers and for general box-makers and matchbox-makers in the *HIWL* sample).
[d]Trade Board Effect (All) includes women whose wages were initially above the minimum rate and would not have been directly affected by the wage increase; their Trade Board Effect is thus 0, and these are included with the positive Trade Board Effects to get the average effect across the whole sample.
[e]Here Average Weekly Wages and Average Hourly Wages are reported for the whole sample in the relevant sub-group, not just for those affected by the minimum wage.

along with 26 of the 59 women in the *Makers* data. Overall, including those women whose hourly wages were already above the minimum rates, the Trade Boards would have increased average weekly income of women in the sample by about 3.6s., from an average of 7.6s. to 11.2s., in the *HIWL* data and by about 2s. in the *Makers* data, from an average of 11.6s. to 13.5s.

Within the tailoring trade, the *HIWL* survey categorizes the notably highly-paid waistcoat makers separately from makers of trousers and coats, and within box-making it separates the especially low-paid matchbox-makers from other box-makers. Panel B of Table 3.8 gives average wages and the potential effect of the Trade Boards minimum rates on each of these separate categories of workers. The earnings increase would have been largest, at 6.4s. per week, for the match-box makers, whose average rate of pay was less than 1½d. per hour and of whom 22 out of 24 earned less than the minimum of 3d. per hour. It would have been least for the waistcoat makers in the *HIWL* sample, whose hourly rate of pay was nearly 6d. per hour, more than the Trade Board minimum, and of whom only 3 out of 21 would have received an increase in hourly wages.

Of the 145 women in both data sets whose total household income is known, 110 would have seen an increase in wages as a result of the Trade Boards Act. Ninety-seven of the 117 wives, daughters and widowed household heads in the *HIWL* sample would have had their weekly earnings increase by an average of 4.8s. each, providing an average increase in family incomes of about 5.5s., from 16s. to 21.5s per week.[75] In the *Makers* sample, the wages of 13 of 28 women workers whose household income is known would have been affected by the Trade Boards minimum rates, also by an average of 5.5s. each. The effect of the increases in income

[75] The increase in family incomes is slightly larger than the average increase in the individual women's wages because of the presence of a few cases in which two women—mother and daughter or two sisters—worked together and the wages of both would have been increased to the minimum hourly rate set by the Trade Boards.

on the poverty status of these women's families can be seen by comparing the first three columns of Table 7 with the last three. Three of the 28 *Makers* households which initially fell below the poverty line would have been raised above it by the wage increase, a reduction in the poverty rate of 10 percentage points, from 39% to 29%. In the *HIWL* sample, 28 out of 68 families that initially fell below the poverty line would have been raised above it, a reduction in the poverty rate from 58% to 34%. Overall, the poverty rate would have been reduced by over 20 percentage points, from 54.5% to 33%.

The Trade Boards minimum rates also would have been successful in reducing the intensity of poverty for those families whose incomes still fell below the poverty line. The average gap between income and the poverty line for those below it would have been reduced from 6.2s. to 4.6s. per family for the *HIWL* households, from 7.7s. to 6s. for the *Makers* households and from 6.4s. to 4.9s. overall.

There are three ways in which these estimates might overstate the extent to which the trade boards' minimum rates reduced household poverty. First, they do not take into account any possible reduction in poor relief benefits resulting from increases in household earnings. Some of the female-headed households in our sample had incomes so low that they qualified for outdoor poor relief—that is, relief in the home rather than in a workhouse. Twelve of the 117 households in the *HIWL* sample received poor relief, as did two of the 28 households in the *Makers* sample.[76] In each of these households, the chief wage earner was female—either a widow, a single woman, or a wife whose husband was an invalid, unemployed, or in a workhouse. The earnings of the women whose households received poor relief was very low,

[76] In both samples several households are specifically noted as not receiving poor relief; the majority of these also are headed by either widows or single women. Many women stated that they were anxious to stay off the parish.

averaging only 4.7s. per week for the 12 households in the *HIWL* sample. Poor relief benefits typically were quite meager, and 11 of the 12 households had incomes below the poverty line even with poor relief.

If local authorities reduced or eliminated poor relief benefits in response to increases in wages, then the effect of the Trade Boards on household income will be reduced. The increase in women's earnings will be countered by a reduction in public assistance. That is, the 1909 legislation might have transferred part of the cost of supporting poor households from the local authorities (in the form of poor relief) to employers (in the form of higher wages). To estimate the effect of such a decline in relief benefits on poverty rates and intensity, suppose that women who received wage increases as a result of the Trade Boards lost all their poor relief benefits. Under this scenario, 24 of the 68 families in the *HIWL* sample that initially fell below the poverty line would be raised above it by the implementation of minimum rates, four fewer than if relief benefits were unaffected. The poverty rate among the *HIWL* families would have fallen from 58.1% to 37.6% rather than 34.2%. The average gap between household income and the poverty line for those families that remained in poverty would have been 4.9s. rather than 4.6s. The effect of taking the poor law into account is small, both because few women received poor relief and because relief benefits were meagre, averaging only 3.8s. per week.

Second, Tawney (1915, 202-4) and Bulkley (1915, 70-1) stressed the difficulties associated with the enforcement of the minimum wages among home workers and cite high proportions of workers who, despite having had their piece rates raised following the Trade Boards Act, still were not able to earn the minimum hourly rates. Employers in the tailoring and box-making industries were required to set piece rates such that "the piece-rate of wages paid

would yield, in the circumstances of the case, to an ordinary worker at least the same amount of money as the minimum time-rate," but they were permitted to exempt a certain proportion of workers who could be shown to be slower than ordinary—up to 20% in tailoring and 15% in box-making (Tawney 1915, 77, 263; Bulkley 1915, 33). The exemption might have been applied quite widely to home workers, who were especially likely to have been slowed down by age, infirmity, child care and other household duties. The above calculations, which assume that all workers received a wage increase up to the minimum rate, might, therefore, overestimate the effects of the Trade Boards on home workers' wages. It is difficult to control for this possibility since there is no way of knowing where the surveyed home workers would have fit in the overall distribution of hourly and weekly wages, or of knowing precisely how much the piece rates they were paid increased.

A lower-bound estimate of the effects of the minimum rates on weekly wages for the women in the *HIWL* sample can be calculated by assuming that the 20% in tailoring and 15% in box-making earning the lowest hourly wages would have had no wage increase as a result of the Trade Boards Act. For the women in the tailoring industry whose wages were below the minimum, the average effect of the Trade Boards on weekly wages falls from 4.3s. to 1.9s—the 15 lowest-paid women were exempted and received no increase, the remaining women received on average an increase of 2.9s. Among the box-makers whose wages were below the minimum, the average effect of the Trade Boards on weekly wages falls from 4.2s. to 3.0s.—the 19 lowest-paid women received no increase, the remaining women received on average an increase of 3.6s. In tailoring, excluding the bottom 20% of earners would have meant that an initial poverty rate of 54% was reduced to 46% by the Trade Board minimum wage rather than to 24%. In box-

making, excluding the bottom 15% would have meant that an initial poverty rate of 68% was reduced to 53% rather than to 43%. Assuming that the Trade Boards Act would not have helped the lowest-paid 15-20% of home workers does somewhat diminish the estimation of its success at raising their incomes and reducing poverty, but the minimum rates would still have had significant effects on the wages and family incomes of the women in the next rungs up of the distribution, especially among the box-makers.

Finally, there is the possibility that the impact of the increase in wages imposed by the Trade Boards Act on total earnings would have been offset by some reduction in labor supply by the women affected. The previous chapters of this dissertation certainly suggest this possibility -- in both the NSLLL sample of female workers and the full sample of home workers from the *HIWL*, we observed a negative relationship between the wage rate and hours of work. This effect is likely just as difficult to measure accurately as the possible employment effect discussed above, for all the reasons discussed above -- it is difficult to say for sure where these women fit in the overall wage distribution and whether they would have been exempted from the minimum wage requirement, or to know whether the minimum wage requirement could possibly have been enforced effectively among home workers who worked at their own speeds and more irregularly, around other household duties. However, as with the other two potential issues, it is possible to give a very rough estimate of what effect a reduction in hours of work could have had on the overall effect of the minimum wages on household income and poverty rates.

The results of Chapter 1 indicate a negative own-wage elasticity of -0.15, which is remarkably similar to that obtained by Costa (2000), and remarkably close to the rougher estimates that can be obtained from results presented to Chapter 2 (-0.14 for daily hours in 1897;

-0.17 for weekly hours in 1908). Among women in the *HIWL* sample whose hourly wages would have been increased by the Trade Boards minimums in tailoring, box making and shirt making, the average increase would have been just over 80%, which implies a reduction in hours of about 12%. Making the appropriate adjustment to hours for each woman whose hourly wages and thus weekly earnings would have been increased, the average boost to weekly earnings would have fallen from 4.3s. to just under 3s. per week. Instead of poverty being reduced among households in the *HIWL* by 24 percentage points, from 58% to 34%, it would only have been reduced by 17 percentage points, from 58% to 41% (the assumed reduction in hours would have meant that 48 households out of 117 would have remained below the poverty line, rather than 40, as in column 5 of Table 3.7). Among women in the *Makers* sample whose hourly wages would have been increased by the Trade Boards minimums in tailoring and shirt making, the average increase would have been just over 60%, which implies a reduction in hours of about 9%. Making the appropriate adjustment to hours for each woman whose hourly wages and thus weekly earnings would have been increased, the average boost to weekly earnings would have fallen from 4.2s. to 2.7s. per week. Instead of poverty being reduced among households in *Makers* by nearly 11 percentage points, from 39.3% to 28.6%, it would only have been reduced by about seven percentage points, from 39.3% to 32.1% (although this represents only one additional household that would have remained above the poverty line with the assumed reduction in hours -- nine instead of eight, as in column 6 of Table 3.7). Put together, this means that instead of poverty being reduced by over 20 percentage points, from 54.5% to 33%, it would have been reduced by just over 15 percentage points, from 54.5% to 39.3% (in total, 57 households would have remained above the poverty line, instead of the 48 shown in column 7 of Table 3.7).

In sum, the Trade Boards Act was successful not only at raising the wages of women who worked in the "sweated" trades it applied to, but also at alleviating their families' poverty. In particular, increases in hourly wages to the new minimum rates significantly reduced the household poverty rate among the home workers in the *HIWL* sample, and also reduced the intensity of poverty for many families whose income remained below the poverty line. Home workers were a primary target of the Trade Boards Act, so its effect on their wages and poverty rates seems like a reasonable measure of its success. Much of the campaigning for the Act had been motivated by concern over the low-pay, long hours and working conditions of home workers in particular, and the findings of the 1908 House of Commons Select Committee on Home Work played a crucial role in getting the 1909 Act passed. Tawney's (1915, 184-220) and Bulkley's (1915, 64-82) investigations of the effects of the minimum rates on the tailoring and box-making industries give special attention to their impact on home workers, and both conclude that the Trade Boards Act was reasonably successful in increasing the piece rates and hourly wages that home workers earned.

IV. Conclusion: The Trade Boards and the Reduction of Poverty

The implementation of the Trades Boards Act raised the incomes of a large share of the women in our sample and enabled them to contribute more to family earnings, which in turn led to a reduction in the household poverty rate and the intensity of poverty. By this measure, the Trade Boards Act should be judged a success. However, the Act was criticized by some contemporaries for being too cautious a measure, covering a small number of occupations dominated by female workers and ignoring the inadequacy of wages for low-skilled adult male workers. For example, Joseph Hallsworth (1925, 8), the Industrial General Secretary of the

National Union of Distributive and Allied Workers, wrote that the Act was "marked with caution, and applied to a very limited extent of the whole field of underpaid labour." Historians have echoed these criticisms. Sheila Blackburn (2007, 172) concludes that "by supporting such a modest reform as the 1909 legislation, Tawney appears to have been led astray by pragmatic considerations. . . . [He was] more concerned with moderate—in his estimation, workable—policies than with radical ideas. It could be argued that what was required to end low pay was not industry-based trade boards but a national minimum wage based on an agreed living income target."[77]

Why did Parliament focus its attention on poor women workers, and largely ignore the pressing issue of the low wage rates of adult male unskilled labourers? The adoption of a national "living wage" for adult males was not politically feasible in 1909. The evils of the sweating system had been well known since the late 1880s, and yet, despite the lobbying efforts of the Women's Trade Union League, the Women's Industrial Council, and the Anti-Sweating League, it took until 1909 for Parliament to adopt legislation that addressed the issue. At the time the Act was passed, no country had adopted a national minimum wage, and government regulation of wages existed only in Australia and New Zealand. According to Tawney (1927, 19), "the weight of ignorance and prejudice, as well as reasoned opposition, to be overcome" in adopting the Trade Boards Act "was enormous." The opposition to the adoption of a national minimum wage for adult males would have been far stronger, since many reformers who supported the regulation of women's employment contracts were opposed to regulating those of men. A living wage for adult males would have been a more controversial measure than any of

[77] Blackburn (1991; 2007) offers a detailed critique of the Trade Boards Act and of Tawney's defense of the Act.

the Liberal welfare reforms adopted by Parliament from 1906 to 1911. S. G. Checkland (1983, 216) wrote, regarding the adoption of a national minimum wage before the First World War, that "for any government to contemplate so far-reaching an interference in the labour market and in income distribution was as yet unthinkable."

The belief that the government should not interfere with the setting of wages for adult males remained long after the adoption of the Trade Boards Act. Moreover, reformers such as Eleanor Rathbone (1924) questioned whether the adoption of a national minimum wage was the most effective way to reduce poverty. William Beveridge (1942), in his report on *Social Insurance and Allied Services*, determined that a system of family allowances offered a better method for dealing with family poverty than a national minimum wage.[78]

However, even if one focuses only on female low-wage workers, the Trade Boards Act still appears to be a "modest reform." Initially Boards were set up in four trades employing about 175,000 women. After the Act was extended in 1913 to cover five additional trades, only 325,000 women, about 10% of the female workforce outside of domestic service and agriculture, were covered. It is not possible to determine the total number of women employed in sweated industries in the decade before the First World War, but many contemporaries believed that it was far larger than 325,000. Hallsworth (1925, 9) concluded that, even after the extension of the Act in 1913, "a very large amount of sweating . . . still continued in trades not covered by the Boards, and particularly among women and girls." J. A. Hobson (1914, 179) went even further, declaring

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[78] In Beveridge's (1942, 154) words: "a national minimum for families of every size cannot in practice be secured by a wage system, which must be based on the product of a man's labour and not on the size of his family." Rowntree (1941), on the other hand, supported the "fixing of statutory minimum wages." For a discussion of the debate over family allowances in the interwar period, see Forrest (2001).

that "it may safely be asserted that the average wage of an adult working woman in this country, not in domestic service, is a sweating wage."

Although the Trade Boards Act was successful at raising women's wages and alleviating their poverty, it covered only a small percentage of female workers during the first decade of its existence and therefore its overall impact on poverty must have been minor. The slow extension of trade boards was due in large part to the clause in the 1909 Act stating that additional boards could be created in trades where the prevailing rate of wages was "exceptionally low." A Board of Trade official who in 1913 described the working of the Act as "successful beyond what anyone imagined possible," added that the Board was proceeding "with great caution" in determining whether to extend the Act to cover additional trades.[80]

The 1918 Trades Board Act authorized the Minister of Labour to establish boards in trades where "no adequate machinery exists for the effective regulation of wages" as well as in low-wage industries, which enabled a rapid expansion in the number of boards. From 1919 to 1921, 36 trade boards were established in Britain, so that by the end of 1921 there were 44 British trade boards covering about 1.5 million workers.[81] The effects of the interwar trade boards on women's wages and poverty rates remains to be studied.

The Trade Boards Act of 1909 should be viewed within the context of the other Liberal welfare reforms, not as an isolated policy. The Act was an experiment meant to deal only with "sweated" trades. It was not an attempt to eliminate working-class poverty. Winston Churchill, who as President of the Board of Trade introduced the Trade Boards Bill to Parliament,

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[80] The testimony of Board of Trade official George Barnes before the Select Committee on the Trade Boards Act Provisional Orders Bill can be found in Parl. Papers (1913, XIV). The quotes are on pages 7-8.

[81] There also were 19 Irish trade boards in effect by the end of 1921.

emphasized that “these methods of regulating wages by law are only defensible as exceptional measures to deal with diseased and parasitic trades” (Churchill 1969, 879). The Trade Boards Act did not solve the problem of low wages in Britain, but it did increase the earnings and contributions to household income of female workers in those trades which it covered. The Act —along with the other Liberal welfare reforms—helped to reduce poverty and economic insecurity for British working-class families.

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APPENDIX 1

CODING THE DATA CONTAINED IN THE *HOME INDUSTRIES OF WOMEN IN LONDON*, 1897 AND 1908

A major component of this project was constructing the data sets of female workers from the tabulated results published in the *Home Industries of Women in London* reports, published in 1897 and 1908. The reports were generated ten years apart by the Women's Industrial Council, and although the 1908 survey was explicitly designed as a follow-up to the 1897 survey and the format and contents of the reports are very similar, there are some differences in the presence and consistency of some types of information about the female workers and their households. Each is presented as a series of tables, organized by industry, with a number of cases listed, each representing an individual homeworker. Across the tables are columns representing different categories of information: "nature of work" lists the industry and specific item made, "price paid" gives the relevant piece rates paid, "average cost of working materials per week" sometimes gives a money amount and sometimes a description of what materials the worker provided herself or were provided for her by the employer. "Average earnings for the day and week" are both listed, but normally one or the other is given, rarely both. "Number of hours in working day" is followed by "condition of worker," which typically gives marital status, where or how the work is done ("alone", or "in kitchen" would be sample typical entries) and sometimes an adjective describing the worker or dwelling ("respectable," "good," "poor," "clean and tidy"), and finally by a column of "general remarks," which contains a wide variety of information. If there is information about the husband, children, other earnings and sources of income, it is found here, as is any information about previous work or training, health issues in

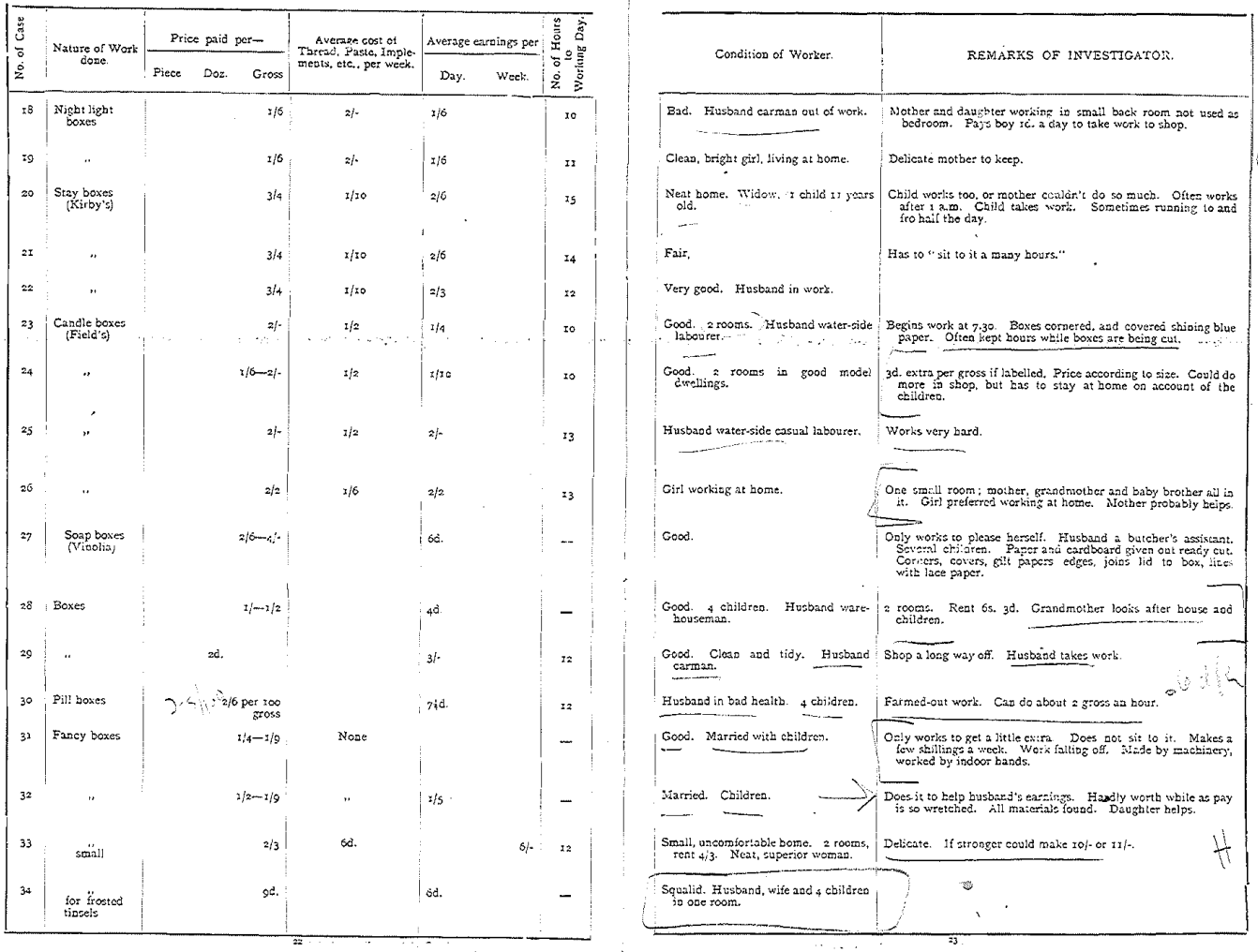
the household, travel to fetch and carry work, and any comments the worker has made about reasons for working, giving up work, or general satisfaction with the work, pay and employer.

Overall, the 1908 report provides more detailed information in the general remarks category, so much more is known in particular about husbands, children, other sources of income and training history. The 1897 report, on the other hand, tended to report more regularly an adjective about the worker's condition in the condition of worker column. Entering the information given in these two columns as variables in a spreadsheet was not always straightforward, and mostly resulted in a series of indicators, for marital status, whether a husband was present, described as out of work, sick or in casual or irregular work, whether children were present and their number if given, and the sources and amounts of additional household income if given. Additionally, it was noted if the worker gave any information about training or travel time, if the household was described as respectable, comfortable, clean and tidy, rough, slatternly, or dirty and untidy, if health issues of any household member were mentioned, or if the worker was described as in good, fair or bad condition or as pleasant, cheerful, bright or healthy. Finally, some workers expressed explicit like or dislike for the work, or whether they felt that had enough or not enough work, or thought prices in the trade had fallen. In many cases, the number of times these various descriptors came up was small, but mentions of health issues and some description of the worker or household were common. Below, I provide sample pages from each report, with explanations of how the information contained in the tabulated results was translated into a data set of quantitative variables.

I. 1897 Report

Sample from 1897 report -- pp. 22-23, cases 18-34 of cardboard box makers (see Figure A.1). Each observation is identified in the sample by an assigned ID number, which range from 1 to 404 in the 1897 sample, and further by the page number of the report (22 in this case) and the case number within the industry category (18-34 of 39 total cardboard box makers). Next, the category of work is recorded ("cardboard boxes" in this case), and specific article made, if given. In this case, they are, so the observations are identified as making night light boxes, stay boxes, candle boxes, soap boxes, pill boxes, or fancy boxes, as appropriate. Whether the nature of work is identified in this way depends on the type of work, so is not given in all cases, and this descriptive variable does not generally enter into the analysis.

The next column gives "Price paid per - piece, dozen or gross," and records the piece rate paid (in shillings and pence per). In this case, every observation does have a recorded piece rate, mostly per gross of boxes -- so for example, case number 18 earns one shilling six pence for making a gross of night light boxes. One exception on the page records earning 2 pence per dozen boxes of unidentified type. Where these piece rates are given, they are recorded in shilling units under three separate variables identifying price per piece, per dozen, or per gross (so for example, the above one shilling six pence per gross is recorded as 1.5 under price per gross). Where a range of prices is given, as in cases 24, 27, 28, 31 and 32 on this page, I have recorded the mean value of the two values given as endpoints (so, for example, case 24 gives a range of 1.5-2 shillings, and a value of 1.75 shillings per gross has been recorded in the data). Although the piece rates given have been recorded in the data, they are difficult to compare across



CARDBOARD BOXES. *Continued.*

No. of Case	Nature of Work done.	Price paid per— Piece	Doz.	Gross	Average cost of Thread, Paste, Implements, etc., per week.	Average earnings per Day.	Week.	No. of Hours to Working Day.	Condition of Worker.	REMARKS OF INVESTIGATOR.
18	Night light boxes			1/6	2/-	1/6		10	Bad. Husband carman out of work.	Mother and daughter working in small back room not used as bedroom. Pays boy 1d. a day to take work to shop.
19	,,			1/6	2/-	1/6		11	Clean, bright girl, living at home.	Delicate mother to keep.
20	Stay boxes (Kirby's)			3/4	1/10	2/6		15	Neat home. Widow, 1 child 11 years old.	Child works too, or mother couldn't do so much. Often works after 1 a.m. Child takes work. Sometimes running to and fro half the day.
21	,,			3/4	1/10	2/6		14	Fair.	Has to "sit to it a many hours."
22	,,			3/4	1/10	2/3		12	Very good. Husband in work.	
23	Candle boxes (Field's)			2/-	1/2	1/4		10	Good. 2 rooms. Husband water-side labourer.	Begins work at 7.30. Boxes cornered, and covered shining blue paper. Often kept hours while boxes are being cut.
24	,,			1/6—2/-	1/2	1/10		10	Good. 2 rooms in good model dwellings.	3d. extra per gross if labelled. Price according to size. Could do more in shop, but has to stay at home on account of the children.
25	,,			2/-	1/2	2/-		13	Husband water-side casual labourer.	Works very hard.
26	,,			2/2	1/6	2/2		13	Girl working at home.	One small room; mother, grandmother and baby brother all in it. Girl preferred working at home. Mother probably helps.
27	Soap boxes (Vinolia)			2/6—4/-		6d.		—	Good.	Only works to please herself. Husband a butcher's assistant. Several children. Paper and cardboard given out ready cut. Corners, covers, gilt papers edges, joins lid to box, lines with lace paper.
28	Boxes			1/—1/2		4d.		—	Good. 4 children. Husband warehouseman.	2 rooms. Rent 6s. 3d. Grandmother looks after house and children.
29	,,		2d.			3/-		12	Good. Clean and tidy. Husband carman.	Shop a long way off. Husband takes work.
30	Pill boxes			2/6 per 100 gross		7½d.		12	Husband in bad health. 4 children.	Farmed-out work. Can do about 2 gross an hour.
31	Fancy boxes			1/4—1/9	None			—	Good. Married with children.	Only works to get a little extra. Does not sit to it. Makes a few shillings a week. Work falling off. Made by machinery, worked by indoor hands.
32	,,			1/2—1/9	,,	1/5		—	Married. Children.	Does it to help husband's earnings. Hardly worth while as pay is so wretched. All materials found. Daughter helps.
33	,, small			2/3	6d.		6/-	12	Small, uncomfortable home. 2 rooms, rent 4/3. Neat, superior woman.	Delicate. If stronger could make 10/- or 11/-.
34	,, for frosted tinsels			9d.		6d.		—	Squalid. Husband, wife and 4 children in one room.	

Figure A1.1: Sample Page from the 1897 Report

industries and even across different articles within industry, so this is an interesting but as-yet-unused variable.

After prices paid is a column denoting "Average cost of thread, paste, implements, etc., per week." These costs, where recorded, are also given in shillings and pence, are are recorded in shilling units as a variable denoted "costs." Next is a column denoting "Average earnings per -- day or week." Average earnings per day or per week are recorded in shilling units -- as on this page, the majority of cases in the 1897 report gives daily earnings, with a small number reporting weekly earnings or not reporting earnings at all. In this example, case 18 is recorded as 1.5 shillings per day, case 33 is recorded as 6 shillings per week, and case 31 has no recorded value for daily or weekly earnings (however it is known in this case that the woman does work, as the investigator notes in the final column that she "Makes a few shillings a week," but "Does not sit to it," and "Only works to get a little extra."). Overall, daily earnings are reported for 322 out of the 404 cases, and weekly earnings for 106 cases.

Where weekly costs of materials are given, the variable can be used to calculate a measure of weekly earnings net of costs, which were paid by the worker. In the 1897 report, however, daily earnings are given much more frequently than weekly earnings, and converting the weekly costs given into daily costs is generally not possible, since days worked per week is generally not given. Where both weekly earnings and daily earnings are reported, in only 24 cases total, they can be used together to estimate days per week -- the average among those 24 cases is about 5 days of work per week.

Next is a column for "No. of Hours to Working Day," which is given for 317 out of the 404 total cases, and in all but five of the cases listed on this sample page. Where a range of

numbers is given for daily earnings, weekly earnings, or daily hours is given, I have recorded the midpoint of the range given, i.e., 8 shillings if 6-10 shillings per week is reported, or 10.5 hours of work if 10-11 hours of work per day is reported. In this data set, the earnings per day and daily hours of work reported are used to calculate an average hourly wage (daily earnings/daily hours). Case 18, for example, reports earnings of 1.5 shillings per day and 10 hours in the working day, for an average of 0.15 shillings per hour, or 1.8 pence per hour. It is possible to calculate an hourly wage in this fashion for 266 out of the 404 cases.

The final two columns of the table, "Condition of Worker" and "Remarks of Investigator" consist of description of the worker, family, and house, and often contains some additional information about the worker's situation. The information gleaned from these two columns is recorded as a quantitative or dummy variable where possible. In two cases in this sample, numbers 28 and 33, the rent the household pays is reported in shilling amounts and is recorded (6.25 shillings for two rooms in case 28, 4.25 shillings for 2 rooms in case 33). Where possible, marital status is identified and recorded. In this sample, numbers 18, 22, 23, 25, 27-32 and 34 can be identified as married, because a husband is mentioned. Number 20 is identified as a widow. Numbers 19 and 26 are described as girls living at home with their families, and are recorded as single in the data. Numbers 21 and 24 are recorded as "unknown status," because no information about the presence or absence of a spouse is given.

Where the information is provided, the number of children present and their ages are recorded. In this example, number 20 is identified as having one child, numbers 28, 30 and 34, four children each. Number 26 is described as a (single) girl living with a mother, grandmother and baby brother -- this is recorded as one child present in the household, even though it is a

sibling and not her child. In other cases, like numbers 18, 24, 27, 31 and 32, it is clear in the entry that there are children present, but not how many. To account for those cases, I have also created an indicator variable that equals 1 if there are children present, whether the number of children is given explicitly or nor. In cases like numbers 18, 20 and 32, it is also recorded if it is noted that a "child works too" or a "daughter helps", with an indicator variable denoting that a child helps with the work. Where possible, I infer and record an estimate of the total household size. Number 30, for instance, is recorded as a household of six -- husband, wife and 4 children. Where another household member is mentioned, that is recorded too. In this sample, numbers 19, 26 and 28 mention a mother present in the household, and number 26 also a grandmother.

In many cases further information, such as an occupation or earnings, about the husband is given. Where appropriate, I record the husband's occupation and whether he is described as out of work, in good work, as sick or incapacitated, or as in irregular or casual labor. Number 18 gives the occupation as "carman" and indicates that he is out of work. Number 22's husband is recorded as "in work." Number 25 indicates that the husband is a casual dock laborer, and number 30 indicates that the husband is in bad health. Although husband's or other household member's earnings are rarely given in this data set, I have created a dummy variable indicating whether it is clear that there is another earner present in the household. Number 18 mentions a daughter also working, while numbers 22, 23, 25, 27, 28, 29 and 31 mention working husbands.

It is common to find some qualitative description of the condition or the worker or household under "Condition of Worker." Where possible, these descriptive adjectives have been assigned to dummy variables indicating that the worker or household was described as "Respectable/superior," "Comfortable," "Good condition," "Fair condition," "Clean/tidy,"

"Pleasant/cheerful," "Rough/slatternly," "Untidy/dirty," or "Poor/bad condition." For example, case 18 is recorded under "Poor/bad condition" because the condition of the worker is described as "Bad." Number 19 is described as a "Clean, bright girl," so is designated as "Clean/tidy," as s number 20, which is described as a "neat home." Numbers 22-24, 27-29 and 31 are all described and recorded as "good." Number 34 is described as "squalid," so is recorded under "Untidy/ dirty." Since number 33 is described as a "Neat, superior woman," she is denoted as "Respectable/superior." I also note whether health issues, either of the worker or another household member, are mentioned. In this sample, number 19 mentions a "delicate mother to keep," which is denoted as a health issue of someone else in the household. Number 33 herself is described as "delicate" and it is noted that she could earn more if stronger -- this is noted as a health issue affecting the worker herself.

II. 1908 Report

Sample from 1908 report -- pp. 80-81, cases 2-9 of tie and belt makers (see Figure A.2).

As with the 1897 report, each observation from the 1908 report is identified by an ID number (1 through 447 in the 1908 report), the page number in the printed report (page 80 in this case), and by the case number within the industry category (2-9 of 10 makers of ties and belts). Next, the "Nature of work" is recorded -- in this case, three tie makers, one tie slipper, one maker of bows, one maker of braces, and two belt makers. Whether the nature of work is identified in this way depends on the type of work, so is not given in all cases, and this descriptive variable does not generally enter into the analysis.

No. of Case.	Nature of Work.	Price Paid.	Average cost of Working Materials per week.	Average Earnings. Day.	Average Earnings. Week.	No. of Hours in Working Day.	Condition of Worker.	GENERAL REMARKS.
2	Tie maker.	2d. a doz.; can do 1 doz. in an hour.	Cotton and needles, and owns machine.		10/–	8 a.m. to 9 p.m.	Woman with invalid husband and 6 children.	Three children earning, 6 at school. Work irregular, takes an hour to fetch it each day if not kept waiting. No poor relief.
3	Tie maker.	4½d. a doz., 1 doz. in 1 hour.	—		8/– to 10/–	Has to work very hard.	Worker lives with old mother in good house.	Mother has 2/- a week out-relief, and 5/- monthly pension from Home Workers' Aid Association, to which the daughter belongs. Respectable people, girl looks pale and delicate. The work is done by hand—long ties with padding. Girl says machine work is replacing hand work with the result of lowering wages.
4	Men's tie maker.	1¾d. doz. plain ties, 2¼d. doz. if mitred ends, 3d. doz. "all round Derbies"; 1 doz. plain can be made in 40 minutes, 1 doz. Derbies in 1½ to 2 hours.	—		5/– to 7/–	—	Woman working alone.	Clean and intelligent, but obliged to go out when investigator called, so had not time to give much information. Had been at trade for 24 years and considers it much gone down. She works for one firm only. Has poor relief.
5	Men's "tie slipper."	2¾d. or 3d. a doz., according to length; can do 1 doz. in 1 hr.	—		Good week 7/– bad week 2/6	Variable, as she does cooking and cleaning	Woman working alone, to supplement husband's earnings.	Husband a blacksmith's hammerer, usually in work, but with small wage. Two little children. The ties come to her cut out, she puts in a lining of "swan" and makes them up ready for wear. The work is slack in the summer. She is considered a quick worker to make 1 doz. in an hour. Before marriage she made 12/– a week if she worked from 6 a.m. to 10 p.m., stopping for meals and fetching the work. The price was then 2d. a doz.
6	Ties, chiefly bows.	—			—	—	Young woman working in workroom with 5 hands under her.	She preferred not to give any information about the work, but said she did fairly well. Sanitary inspector has visited.
7	Machining braces.	2d. per doz., can do 1 doz. in an hour.	3 reels of cotton each week cost 2½d. each.		8/–	12 hrs.	Widow working with a friend in living room.	This is her whole means of support, she is applying for poor relief. Sanitary inspector has visited. Has to take work to and fro every day. The work is done by treadle machine, which makes the legs swollen and sore. The same pay is given in the factory. Room fairly tidy.
8	Belt machinist.	From 4d. to 8d. per doz.; can do from 6 to 8 doz. a day.	Cotton 2¾d. a reel.		14/– to 15/–	9 a.m. to 7.30 p.m.	Girl working in a separate workroom.	Widowed mother, with 1 son and 2 other daughters at work, this girl working at home. They have 6 rooms, for which they pay 12/– a week, and seem very respectable. The belts come cut out, and go elsewhere to be finished. Inspector has visited. Used to be a good trade, but is going down.
9	Belt finisher.	5d. a doz. for leather, 6d. a doz. for silk; 1 doz. leather take 2½ hrs., 1 doz. silk take 3 hrs.	Not stated.		8/– to 9/6	Variable.	Woman working in kitchen.	Leather belts require 3 bones eased and inserted, and little leather bows and buckles sewn on. Silk belts have 9 bones and the same bows and buckles. Husband a carman, very irregular work, 2 young children. They lodge in 2 rooms, rent 5/6. The work is slack for 2 months of the year. Inspector has not visited. It takes an hour a day to fetch work, and she is often kept waiting. Indoor workers are paid the same. She works for one firm, which does good work only. Clean, pleasant woman. Says trade is going down. She used to get 8d. for belts now 5d. She says this is owing to Jewish competition and cheaper retail prices.

Figure A1.2: Sample Page from the 1908 Report

One key difference between the reports is that the 1908 report does not give the "Price paid," or piece rate, in as straightforward a manner as the 1897 report had. Instead of being listed simply as per piece, per dozen or per gross, there tends to be more text and explanation in the 1908 report, and this is the place in the survey that reveals a possible way to calculate the hourly wage in many cases. For instance, case number 2 says that the worker is paid 5 pence per dozen ties, and can do one dozen in an hour. This implies a potential hourly wage rate of 5 pence per hour, and this is what is recorded in the hourly wage category. Similarly, number 3 is assigned a wage rate of 4.5 pence per hour, number 5 is assigned 3 pence per hour, number 7 is assigned 2 pence per hour, and number 9 is assigned 2 pence per hour (6 pence a dozen, where a dozen takes 3 hours). Numbers 4 and 8 are a bit more complicated. Number 4 reports that she can make one dozen plain ties in 40 minutes, and that she is paid 1.5 pence per dozen, indicating an hourly wage of 2.25 pence per hour. Number 8 can do 6-8 dozen a day, in a 10.5 hour day, for 4-6 pence per dozen. A rough estimate of an hourly wage is obtained by dividing an average of 7 dozen per day by 10.5 hours, for about 2/3 of a dozen per hour, times an average of 6 pence per hour = 4 pence per hour. It is noted in the data with an indicator variable whether an hourly wage estimate was given directly, or whether it was obtained more indirectly as in the last example. It is possible to compute an hourly wage for 278 out of the 447 total cases.

As in the 1897 report, "Average cost of working materials per week" is reported only irregularly. In this sample, information is given for only three out of the eight cases, and in only one of those cases can a definitive amount of costs per week be determined. Case 2 reports only that costs include "Cotton and needles" and notes that the woman owns her own machine. Case 8 reports that she uses cotton at 2.5 d. a reel, but not how many reels are used per week. Only case

7 makes this explicit -- “3 reels of cotton each week cost 2.5 d. each” is recorded in the data as 7.5 d. in costs per week. Where given, these weekly costs could be used to calculate net earnings per week, but in general they are not reported with any regularity.

Whereas the 1897 report most reliably reported daily earnings and daily hours of work, the 1908 report normally reports average weekly earnings and gives a time range for the number of hours in the working day. Weekly earnings are reported for seven out of the eight cases in this sample. Where a range is given, I record the midpoint, i.e., 9s. where 8s.-10s. is reported, as in case 3. Weekly earnings are reported for 378 out of the total 447 cases, and daily earnings for 186 cases. Daily hours of work (“No. of hours in working day”) is reported with much less regularity in the 1908 report than in the 1897 report, and instead of giving a number, it is more common to see a time frame, as in case 2 in this sample, which reports 8a.m. to 9p.m. This is recorded as a 13 hour work day, but with the understanding that this variable will generally represent an upper bound, since it is likely that some of this time would have been lost to meals, household chores and child care. Even as estimate of daily hours can only be obtained for three out of these eight cases -- 13 hours for case 3, 12 hours for case 7 and 10.5 hours for case 8 -- and for 171 out of the total 447 cases. However, using the reported weekly earnings and hourly wage rates, it is possible for the 1908 report to calculate an estimate of total weekly hours of work for 261 out of the 447 total cases.

The final two columns of the table, “Condition of Worker” and “General Remarks” consist of description of the worker, family, and house, and often contains some additional information about the worker’s situation. The information gleaned from these two columns is recorded as a quantitative or dummy variable where possible. In two cases in this sample,

numbers 8 and 9, the rent the household pays is reported in shilling amounts and is recorded (12 shillings for six rooms in case 8, 5.5 shillings for 2 rooms in case 9). Where possible, marital status is identified and recorded. In this sample, numbers 2, 5 and 9 can be identified as married, because a husband is mentioned. Number 7 is identified as a widow. Numbers 3 and 8 are described as girls living at home with their mothers, and are recorded as single in the data. Number 6 is described as a "young woman working in workroom," with no further information about the household, and number 4 is described as a "woman working alone." Both are recorded as "unknown status," because no information about the presence or absence of a spouse is given.

Where the information is provided, the number of children present and their ages are recorded. In this example, number 2 is identified as having nine children, three of whom are earning and six of whom are at school. Numbers 5 and 9 are each described as having two little or young children, presumably not of working age. Number 8 is described as a (single) girl living with a widowed mother and three siblings, all also at work -- this is recorded as four children present in the household, even though they are the (teenaged or grown) children of the widowed mother, and not of the worker herself. In general the 1908 report appears to give much more detailed information about children and other household member when present than the 1897 report, so in practice it was not necessary to create an indicator variable that equals 1 if there are children present, whether the number of children is given explicitly or not (as it was for the 1897 report). Where possible, I infer and record an estimate of the total household size. Number 2, for instance, is recorded as a household of eleven -- husband, wife and nine children. Number 3, a girl living with an old mother, is recorded as a household of two; numbers 5 and 9, each a husband, wife and two children are households of four; number 8, the girl living with her

widowed mother and three siblings is a household of five; number 7, described as a widow working with a friend in her living room, is recorded as a household of one. For numbers 4 and 6, where the marital status was denoted as unknown and no additional information is given about the household, I do not record a household size.

As in the 1897 report, in many cases further information, such as an occupation or earnings, about the husband is given. Where appropriate, I record the husband's occupation and whether he is described as out of work, in good work, as sick or incapacitated, or as in irregular or casual labor. Number 3 describes the husband as an invalid -- he is denoted with an indicator variable as sick. Number 5 identifies the husband as "a blacksmith's hammerer, usually in work, but with a small wage," and he is denoted as "in work." Number 9 identifies the husband as a carman in "very irregular work," so he is denoted with an indicator variable as in irregular work. Unfortunately, none of the cases in this sample record the earnings of the husband (or father), but where this information is given, in 82 cases out of the total 447, it is recorded.

In general there is much more complete information about the husband's work status, that of other household members, and other sources of income, reported in the 1908 report compared to 1897. For instance, number 3 reports that the mother receives 2s. a week in out relief and 5s. a month pension from the Home Workers' Aid Association. Thus in this case we know that the girl and her mother constitute a household of two with total household income of 12.25s. per week (the girl's 9s. + 2s. poor relief + 1.25s. per week of the monthly pension). Similarly, the widow in number 8 is reported as earning 8s. per week, and it is noted that "this is her whole means of support," so she is noted as a household of one with total household income of 8s. per week. These are two of the 184 households where total household size and income can be determined

with reasonable confidence. In other cases on the page, unfortunately, the earnings of working children or a working husband are not stated, or it cannot be determined with confidence that the observed worker is the only source of household income.

The "General Remarks" sometimes include other useful nuggets of information about the condition of the household, or some history of the worker. In this sample, number 4 reports that the woman "had been at trade for 24 years," and number 5 that she did the same work before marriage. Where information like this is given about past experience, whether the worker did the same work before marriage or previously in a factory, or has informal training or served an apprenticeship, it is recorded with an appropriate indicator variable. Number 3 are described as "Respectable people," number 4 as "clean and intelligent," number 7 as "fairly tidy," number 8 "very respectable," and number 9 as a "clean, pleasant woman." All of these are denoted using the appropriate indicator variable as "Respectable" or "Clean/tidy" (as opposed to dirty or untidy or in poor condition). I also note whether health issues, either of the worker or another household member, are mentioned. In this sample, number 2 has an invalid husband, which is noted as a health issue of another household member. Number 7 uses a machine that "makes the legs swollen and sore," and this is noted as a health issue of the worker herself.

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APPENDIX 2

CREATING THE DATA SET OF FEMALES IN THE NSLLL

The contents of the surviving 26,915 household record cards of the *New Survey of London Life and Labour* were computerized and coded in a project overseen by Tim Hatton, Roy Bailey and Anna Leith at the University of Essex and Dudley Baines and Paul Johnson at the LSE, and the resulting data sets were deposited in the UK Data Archive. Extensive discussion of the original computerization and coding of the NSLLL is provided in the NSLLL Codebook and companion paper. This is to explain my process for using the public data files to create a data set of females observed in the NSLLL, including information about household composition and demographics, labor force status, occupation, earnings and hours of household members, other sources of household income, total income and poverty status of the household.

The first stage involved reorganizing and merging several separate data files into, first, a data set with observations at the household-level, and next, a data set where the level of observation was each individual female, with the appropriate household information incorporated into each individual observation. It was also necessary at several stages along the way to identify and eliminate observations of individuals and households for which there was not adequate information about the crucial variables -- in most cases the problematic missing information was the employment status and earnings of some or all household members. The Codebook notes that, in compiling and interpreting the data, "the biggest shortcoming, indeed the most severe problem overall, is that interviewers often failed to complete the card this resulting in many missing values" (NSLLL Codebook, 1). Ultimately, a data set of 20,962 households with complete enough information on household demographics, earnings, income, and rent paid,

as well as with at least one adult female present, was converted into a data set of 29,151 individual adult females.

The publicly available NSLLL data is separated into several different data files. One contains information common to all members of the household -- including address and borough of residence, rent paid, house tenure and number of rooms, date of interview and interviewer -- under one record per household, and denoted with a household identification number. The next file contains information on income from sources other than household members' earnings -- its source and amount -- again under one record per household. Key examples of other sources of income include unemployment insurance, health insurance and trade union and friendly society benefits, pensions, poor relief, and income from lodgers or rental properties. Then there is one file each for non-wage earners and for wage earners within the household -- here each record is for an individual rather than household. Information provided for each individual non-earner includes the household identification number, an assigned individual number, sex, age, relationship to household head, and birthplace. Information for each individual earner includes all of the above, plus occupation, skill level, employment status, cost of transport, hours of work and earnings last week and in a normal full week, and state insurance deductions.

The most critical bit of reorganization necessary to make a data set including information about all individuals at the household level was to transform the information about earners and non-earners from its vertical presentation in the master data (i.e. the 39,797 earners and 44,691 non-earners contained within the 26,915 total households were organized as a list of individuals in each data set) to a horizontal list of the earners and non-earners within each household, which could be merged with the household data set. The object was to be able to produce new variables

identifying the total number of adults and children in the household, the total numbers of males and females and earners and non-earners, and total earnings and household income from all sources. I proceeded by dividing the earners' file and the non-earners' file into a number of sub-files, each of which would only contain one earner or non-earner per household, and could then be merged into the master file of household level data by using the household identification number. Each individual in the file of earners was identified by the household identification number, and then by a unique individual earner number -- thus one file I created contained every earner identified as earner number 1 in the master file, another contained everyone identified as earner number 2, another everyone identified as earner number 3, and so on. The same process was used for the non-earners, who were also identified within each household by a unique individual number -- thus another set of files I created contained everyone identified as non-earner number 1 in one file, then non-earner number 2 in a second file, and so on. The end result were many separate files of lists of earners and non-earners, each identified with their household identification number, that did not contain more than one person per household. These could all be individually merged onto the master household data file, so that information about each earner and non-earner in the household were listed horizontally across one long entry per household.

Next, it was necessary to identify the household head (and whether male or female), the wife if there was one, and which household members were children under the age of 14. In most cases a male (or female) household head in the workforce had been identified as earner number 1 and one not working as non-earner number 1. For a working male household head, in most cases a working wife was identified as the second earner and a non-working wife was identified as non-earner number 1. For a non-working household head, a non-working wife was most likely

identified as non-earner number 2 and a working wife identified as earner number 1 (though that last case was rare). All individuals under the age of 14 were identified as children, and it was confirmed that no individuals under the age of 14 had been recorded as earners (14 was the legal age for working, and thus used as the cutoff between child and adult). All adults beyond the household head and wife were identified as "other" males and females without further identification of their relationship to the household head. The majority are sons and daughters over the age of 14 still living at home, some are sons- or daughters-in-law, some the parents of the household head or wife, a few sisters or brothers, nieces or nephews, and even fewer more distant relatives. There were also a handful of cases in which a household reported two husbands or two wives. If it was clear that the extra husband or wife likely belonged to a younger-generation son or daughter present in the household, then he or she was recoded as an additional "other" male or female. In other cases it seemed apparent by matching ages and likely occupations by gender that a husband or wife had simply been miscoded as the wrong gender - these few uncertain cases were, however, eliminated.

With the data in this wide format, it was now possible to collate across the earners and non-earners and to create variables such as total household size, numbers of adults and children, numbers of males and females, numbers of earners of each gender, the gender, age, occupation and labor market status of the household head, total income and earnings in the household. When the data was transformed once again into a vertical list of individual females, each observation of an individual female contained her own individual information, and also all of the general household-level variables that had been generated.

First, though, it was at the stage of working with the household-level data set that some households were eliminated for not containing complete enough information about the labor market status or earnings of household members. Here is where I gratefully made use of the data file of usable households that Hatton and Bailey had already created for their paper on household poverty in the NSLLL (Hatton and Bailey 1998). Although the data that they used to examine poverty among households in the NSLLL did not contain information for individual workers (and hence many of the variables about individual work and earnings that I would need), they had carefully put together all the data available relating to total household income -- from earnings and from other sources -- and had calculated measures of gross household income, and household income net of rent payments. They note, "We calculate household income as the total of last week's earnings for all members of the household (excluding lodgers) plus all other sources of income minus travel expenses and minus state insurance deductions" (Hatton and Bailey 1998, 583n). Net income received from lodgers was included as income, as was rent collected from sub-tenants, but lodgers were not counted as household members (Hatton and Bailey 1998, 584). Most helpfully, they determined which households had provided complete enough information about labor market status, earnings and other sources of income to be confident of total household income. They conclude that "excluding households for which there is insufficient information we can measure income and needs for 22,016 households" out of the original 26,915 (Hatton and Bailey 1998, 584).

They had also created several useful variables that could be used to determine the household's poverty status -- the minimum income standard for a household of the given size and demographic make-up for each of five different possible measures of poverty that could be

compared to the income of the household. The first measure was that used by the NSLLL itself, the second the NSLLL base standard adjusted "using the only available econometric estimates of household equivalence scales for the interwar period", the third Rowntree's revised poverty standard from 1936, the fourth a scale derived from the 1942 Beveridge Report, and the fifth based on the interwar social security system (for further explanation, see Hatton and Bailey 1998, 580-2). I merged the variables calculated by Hatton and Bailey into my own data set, and, applying their filter, narrowed my data set to the same 22,016 households with complete information on household income. Those 22,016 were further narrowed to 20,962 by excluding those with no females present, for the purposes of this investigation of female labor supply. Those 20,962 households produced a data set of 29,151 adult females.

The final set of major issues in data cleaning and assembling had to do with correctly identifying those in the labor force, out of the labor force and unemployed, particularly among the household heads and the female workers themselves. In general, the designations given in the data were accurate -- non-earners were, by definition, considered not in the labor force, and most potential wage earners were correctly designated by the survey as not in the labor force at the moment, employed, unemployed, or sick/incapacitated. [Since a significant number of those included as earners were in fact designated as out of the labor force, this category seems to have been thought of more as potential wage earners. The Codebook explains: "Some interviewers followed the practice of including certain categories of adults as Earners who were not participating in the labour market (e.g. a wife 'at home' or pensioners who were heads of households). There was usually no attempt to reclassify these individuals at the point of data input (hence the appearance of a high proportion of non-participants, code N)" (NSLLL

Codebook, 29). The classification of an individual at time of data entry as earner or non-earner appears to have followed from the placement of the individual on the investigation card -- see Figure A.3 below for a sample.] There were, however, a few instances in which individual employment status appeared to have been misidentified or miscoded. For consistency, it would be expected that those marked as in the labor force and employed should also have positive earnings and hours recorded for the previous week; that those marked as unemployed should not have positive earnings or hours recorded for the previous week, but should in a normal full week, and that those who are recorded as receiving unemployment benefit are also recorded as unemployed; and that those marked as not in the labor force had no positive earnings or hours of work recorded the previous week or in a normal full week.

In 172 cases workers with no employment status or with unknown status recorded were able to be reclassified based on reported earnings and hours, or a lack thereof. Of those 33 were classified as employed because they did report positive earnings and hours of work in the previous week; another 33 who reported earnings in a normal full week and none in the previous week, along with receiving unemployment benefits, were able to be classified as (very likely) unemployed; and 106 were coded as not in the labor force because they reported no earnings or hours in the previous week or in a normal full week, and also reported no occupation, transport costs or state insurance contributions. In a few cases, a household head marked as unemployed did report positive earnings and hours in the previous week. These were recoded as employed, but the discrepancy is curious -- they may actually have had work in the previous week but found themselves newly unemployed at the time of interview. (Indeed, the Codebook notes that “the most problematic aspect of coding [Employment Status] arises when the individual became

unemployed, or restricted to part-time employment, in the days immediately prior the interview" NSLLL Codebook, 28.)

In 21 cases a household head whose employment status was given as sick/incapacitated but who reported positive earnings and hours in the previous week was reclassified as employed. In general, those designated as sick/incapacitated were also denoted as in the labor force (but sick) if they reported no earnings or hours last week, but earnings and hours in a normal full week, or an occupation or employer was given, and denoted as not in the labor force if no normal earnings or hours were reported, and no occupation or employer was given. In a handful of cases (three) an individual designated as not in the labor force but reporting positive earnings and hours of work in the previous week were recoded as employed. Another handful of cases in which individuals designated as not in the labor force report earnings in a normal full week are also designated as pensioners or retired, so seem fairly clearly to be giving the details of former employment.

SPECIMEN OF HOUSEHOLD INVESTIGATION CARD

(a) *Front of Card.*

Name *A——* *B——*

Address *C Street*

Borough *Barking*

LONDON SCHOOL OF ECONOMICS, UNIVERSITY OF LONDON. Social Survey of London.

A 0847 File No. *157*

424

WAGE-EARNERS (including unemployed)							HOURS		EARNINGS					
Relationship	Age	Occupation	Employer	Place of Work	Cost of Transport Weekly	Last Week	Full Time	Last Week s.	Last Week d.	Full Week s.	Full Week d.	State Insurance Deductions s.	State Insurance Deductions d.
Husband	*38*	*Labourer*	*E Company*	*F Street*	*2/6*	*32*	*50*	*44*	—	*55*	—	*1*	*4*
NON-WAGE EARNERS Sex ...		*F*	*F*	*M*	*M*								
Age ...		*31*	*7*	*6*	*2*								
Relationship		*Wife*	*Daughter*	*Son*	*Son*								
INCOME FROM OTHER SOURCES		*From sub-letting 2 rooms*			*4/1½*	*M*	*44/–*		*55/–*			*8/3*	
						wc₂ in	*36/1*		*47/1*			*4/1*	
												2	
							32/1		*32/1*			*5 . 3½*	
												2 . 1	

Date. *7.1.30* Interviewer. *X—Y—*

(b) *Back of Card.*

GENERAL REMARKS, Etc.

Birthplaces of Adults *Husband—Barking.*
Wife —Shoreditch

RENT, Weekly 8/3
(Including Rates. Receipts from Sub-tenants not deducted)

PERSONS AND ACCOMMODATION
(This refers to family as on face of card)

425

No. of Persons	*5*
„ „ Bedrooms	*1*
Parlour	*No*
Kitchen	*1*
Scullery	*Yes*
Pantry or Larder	*No*
Bath	*No*
Yard	*Yes*
Garden	*No*
Allotment	*No*

Remarks on Accommodation
House in fair repair
Rooms rather small

Figure A2.1: Sample Card from the NSLLL (NSLLL Codebook, 45)

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